

Appendix B

STATEMENT OF HERITAGE IMPACT

New Intercity Fleet


Eveleigh Facility Project

Statement of Heritage Impact

Report to WSP Parsons Brinckerhoff

February 2017



 artefact

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Document history and status

Revision	Date issued	Reviewed by	Approved by	Date approved	Revision type
1	30 November 2016	Sandra Wallace	Sandra Wallace	7 December 2016	First draft
2	4 January 2017	Rod Williams and Natalie Green	Sandra Wallace	2 February 2017	Second draft
3	20 February 2017	Rod Williams and Rima Exikanas	Sandra Wallace	24 February 2017	Final

Printed:

Last saved:

24 Feb 2017

File name:

NIF Stabling Site Eveleigh SoHI Draft

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Name of organisation:

Artefact Heritage

Name of project:

New Intercity Fleet Eveleigh Facility

Name of document:

Statement of Heritage Impact

Document version:

Final

EXECUTIVE SUMMARY

The New Intercity Fleet Eveleigh Facility Project (the 'Project') is located within the existing Eveleigh Rail Precinct ('The Precinct') approximately two kilometres' south-west of the Sydney Central Business District. The Precinct comprises numerous components including the Millennium Shed, the Endeavour/XPLORER Maintenance Centre, the OSCAR Maintenance Centre, the Welding Qualifications Centre and the Large Erecting Shop.

Rail related activities have been undertaken at the Precinct since the late 1800s when the site was initially established as a major railway workshop to support the smaller workshops and regional centres across the NSW rail network. Since then, the Precinct has undergone a number of infrastructure modifications to support the increase in passenger train movements and in response to technological and operational changes across the NSW rail network. Currently, Sydney Train's Millennium and Oscar fleets, the Endeavour and XPLORER fleets operated by NSW TrainLink and the steam and diesel engine heritage trains managed and operated by Rail Heritage utilise the Precinct for stabling and maintenance purposes.

The Precinct is listed on the State Heritage Register as item no. 01140 "Eveleigh Railway Workshops" due to its history as one of the major support centres of the NSW rail network, and the high degree of intactness of original nineteenth and early twentieth century buildings. There are a number of other individually listed items within the Precinct.

Transport for NSW is proposing to undertake track, civil, overhead wiring, signalling and signage modifications at the Precinct to facilitate commissioning, stabling, maintenance and decanting activities. The modification works would allow the required configuration of Short New Intercity Fleet (SNIF) and Long New Intercity Fleet (LNIF) trains to be stabled. The project requires the reconfiguration of the existing infrastructure within the Precinct at three primary locations being the Engineering Siding (Subject Site 1), the Millennium Maintenance Centre (Subject Site 2) and the Eastern Siding (Subject Site 3).

Artefact Heritage have been engaged by WSP Parsons Brinckerhoff, on behalf of the Transport for NSW, to assess the heritage significance of items within the Precinct which may be impacted by the project and outline heritage management and mitigation measures where appropriate.

Conclusions

The project would result in the following:

- minor impact to the State Heritage listed Eveleigh Railway Workshops (SHR# 01140)
- major physical impact (total demolition) to the Welding Qualifications Centre. This item has been identified as having little heritage significance
- major physical impact (removal) of a wooden buffer stop. This item has been identified as having little heritage significance
- moderate visual impact to the Works Manager's Office, an element of high heritage significance of the Eveleigh Railway Workshops
- negligible impact to the heritage values of the locally significant FRN 2186 Second Class Sitting / Buffet Car (RailCorp s170 register, SHI# 4807101)
- low to moderate potential to impact archaeological remains of State significance within the Precinct.

Recommendations

The following heritage recommendations are provided for the project:

- A Section 60 permit under the NSW *Heritage Act 1977* would be required prior to impacts within the Eveleigh Railway Workshops. This assessment should be provided to NSW Heritage Council in support of that application.
- The Welding Qualifications Centre should be archivally recorded prior to demolition. This would ensure that architectural details as well as context and setting would be permanently recorded. Archival recording would be undertaken in accordance with NSW Heritage Council guidelines.
- The portion of plaza in front of the Works Managers Office, containing Heritage Car FRN 2186, should be subject to archival recording prior to works commencing, including relocation of FRN 2186. Archival recording would be undertaken in accordance with NSW Heritage Council guidelines.
- The wooden buffer stop in the Eastern Siding should be re-used if feasible and if it meets current operational requirements.
- A schedule of movable heritage objects in the welders shed should be prepared in consultation with Sydney Trains. The schedule of objects would be prepared prior to commencement of works, and provide guidance in accordance with the Sydney Trains Movable Heritage Strategy on the temporary and long-term curation of these items.
- Sympathetic design and materials would be considered as part of detailed design, particularly in Subject Site 3 in front of the Works Managers Office.
- A program of archaeological monitoring under the supervision of the excavation director would be conducted during the removal of the present ground surfaces in Subject Site 1. Depending on the intactness of archaeological resources identified in this area, testing or open area salvage excavation would be conducted at the discretion of the excavation director. The extent of this program would be refined during detailed design and constructability stages of the project and would be input into an Archaeological Work Method Statement which would supplement the present Archaeological Research Design. All State significant deposits would be archaeologically excavated, recorded and removed within areas of impact.
- A program of archaeological monitoring under the supervision of the excavation director should be conducted for footing excavation of overhead wiring staunchions located within Subject Site 2 in accordance with the Archaeological Work Method Statement. All State significant deposits would be archaeologically excavated, recorded and removed within areas of impact.
- Minor ground disturbing impacts (such as non-destructive digging service investigation) should be archaeologically monitored in areas of identified archaeological potential in accordance with the Archaeological Research Design.
- The FRN 2186 Second Class Sitting / Buffet Car is situated in a prominent area which suits the heritage character of the carriage. If possible, it should be relocated to an area with similar

public visual prominence. The construction contractor would prepare plans for removal, temporary storage and temporary remediation works following removal of the carriage prior to works commencing. The final location of the carriage would be determined in consultation with the owner of the carriage and the property owner.

- The memorial plaques and their plinths currently located to the west of the Welding Qualifications Centre must be protected from damage during demolition and any other construction works. This protection may consist of a temporary exclusion zone.
- In accordance with Policy 3.6 of the Australian Technology Park Conservation Management Plan, the obstruction of the northward view corridor from the pedestrian plaza in the Australian Technology Park caused by the extension of the Eastern Siding, should be minimised by design. For example, barrier height and bulk should be minimised as much as possible to conserve view lines and possible access routes between the Work Manager's Office and the Locomotive Workshops.
- In accordance with Policy 9.2 of the Australian Technology Park Conservation Management Plan, local, heritage and rail history community groups should be informed of the proposed works and their input sought for strategies to preserve the rail heritage of the Australian Technology Park.
- The Transport for NSW Unexpected Find Procedure would be adhered to during construction.

Acronyms

Acronym	Definition
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
ISEPP	<i>State Environmental Planning Policy (Infrastructure) 2007</i>
LEP	Local Environmental Plan
LGA	Local Government Area
LNIF	Long New Intercity Fleet Train (reference length 205 metres)
OEH	Office of Environment and Heritage
REF	Review of Environmental Factors
SEPP	State Environmental Planning Policy
SHR	State Heritage Register
SNIF	Short New Intercity Fleet Train (reference length 164 metres)
SoHI	Statement of Heritage Impact

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1.0 INTRODUCTION

1.1 Background

The New Intercity Fleet Eveleigh Facility Project (the 'Project') is located within the existing Eveleigh Rail Precinct ('the Precinct') approximately two kilometres' south-west of the Sydney Central Business District. The Precinct comprises numerous components including the Millennium Shed, the Endeavour/XPLORER Maintenance Centre, the OSCAR Maintenance Centre, the Welding Qualifications Centre and the Large Erecting Shop.

Rail related activities have been undertaken at the Precinct since the late 1800s when the site was initially established as a major railway workshop to support the smaller workshops and regional centres across the NSW rail network. Since then, the Precinct has undergone a number of infrastructure modifications to support the increase in passenger train movements and in response to technological and operational changes across the NSW rail network. Currently, Sydney Train's Millennium and Oscar fleets, the Endeavour and XPLORER fleets operated by NSW TrainLink and the steam and diesel engine heritage trains managed and operated by Rail Heritage utilise the Precinct for stabling and maintenance purposes.

The Precinct is listed on the State Heritage Register as item no. 01140 "Eveleigh Railway Workshops" due to its history as one of the major support centres of the NSW rail network, and the high degree of intactness of original nineteenth and early twentieth century buildings. There are a number of other individually listed items within the Precinct.

Transport for NSW is proposing to undertake track, civil, overhead wiring, signalling and signage modifications at the Precinct to facilitate commissioning, stabling, maintenance and decanting activities. The modification works would allow the required configuration of Short New Intercity Fleet (SNIF) and Long New Intercity Fleet (LNIF) trains to be stabled. The project requires the reconfiguration of the existing infrastructure within the Precinct at three primary locations being the Engineering Siding (Subject Site 1), the Millennium Maintenance Centre (Subject Site 2) and the Eastern Siding (Subject Site 3). Temporary lay down areas and offices will also be established during the construction phase of works. The location of the subject sites and temporary construction areas are illustrated in Figure 1.

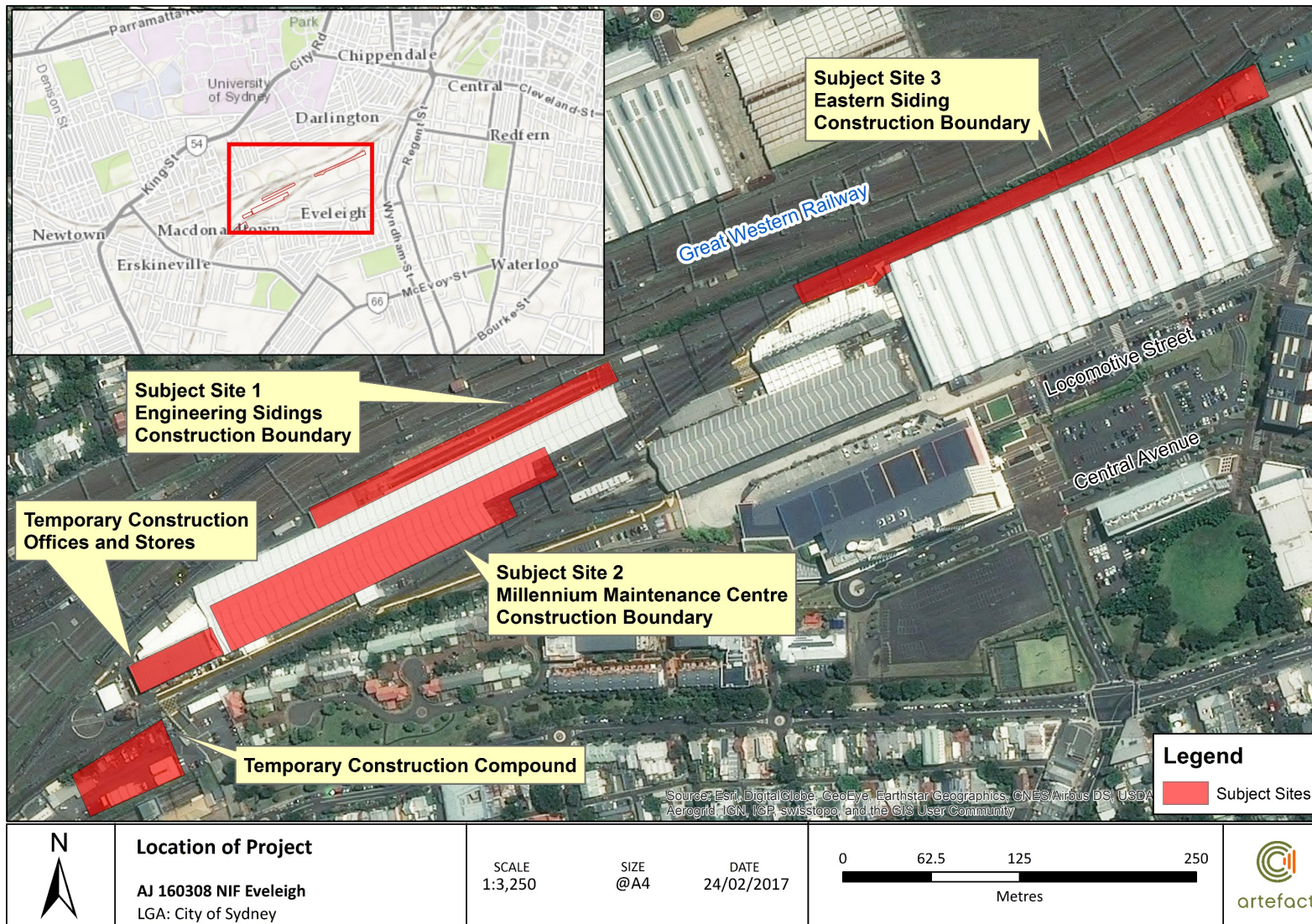
To allow for the New Intercity Fleet trains, minor modifications to a number of existing stabling facilities around the network are required. The Eveleigh Commissioning Stabling and Maintenance Facility was selected as one of a number of facilities to undergo modification to support the introduction of the New Intercity Fleet. The Precinct was selected as the primary day stabling location due to its location close to the terminating station, minimal dead running distance, minimal upgrade works required.

The New Intercity Fleet would:

- provide a more consistent and improved level of customer service for intercity passengers
- facilitate the retirement of the two oldest electric train sets currently in operation
- reduce the costs of intercity operations
- increase capacity for intercity passengers.

Artefact Heritage have been engaged by WSP | Parsons Brinckerhoff, on behalf of the Transport for NSW, to assess the heritage significance of items within the Precinct which may be impacted by the project and outline heritage management and mitigation measures where relevant.

Figure 1: Location of the Project



1.2 Overview of the project

The New Intercity Fleet comprises 512 cars which would progressively come into service. The first trains are expected to be delivered in 2018, with the remainder of the fleet being delivered through to 2022. Commissioning will commence in late 2018, with the first train entering into service in 2019.

Commissioning, stabling and maintenance of the New Intercity Fleet would be undertaken on Maintenance Roads 5-10 associated with the Millennium Shed. To accommodate the New Intercity Fleet, track, civil, overhead wiring, signalling and signage modifications to the existing infrastructure in the Precinct are required. These modification works would also allow the required configuration of Short New Intercity Fleet (SNIF) and Long New Intercity Fleet (LNIF) trains to be stabled. LNIF trains would operate as 10-car sets with a train length of approximately 205 metres, while the SNIF would operate as 8-car sets with a train length of 164 metres. The modification works would allow stabling and maintenance for 9.5 New Intercity Fleet trains (comprising 4.5 SNIF and 5 LNIF).

The project involves modifications to three main areas, being:

- **Subject Site 1 - Engineering Sidings:** extension of both tracks by approximately 49 metres to accommodate decanting of a LNIF train on both tracks. This would involve the relocation of the equipment within the Welding Qualifications Centre to another building/location within the Precinct and demolition of the Welding Qualifications Centre
- **Subject Site 2 - Millennium Maintenance Centre:** extension of the OHW for the full length of Roads 6 and 7 in the Millennium Shed and other works such as aligning safety isolation equipment, located at the Sydney end of the Millennium Shed to ensure the full length of the New Intercity Fleet trains can be accommodated under a separate electrical section
- **Subject Site 3 - Eastern Siding:** extension of the Eastern Siding by approximately 26 metres to allow a LNIF train to be stabled and allow other trains to move throughout the Eveleigh Facility without restriction. This would require the permanent acquisition of approximately 275 square metres of land within the Australian Technology Park.

Two other ancillary areas have also been designated for temporary facilities during construction works. These areas are:

- **Temporary construction offices and stores:** located in the existing Eveleigh Maintenance Centre Office and Amenities. These offices would not be internally altered for the proposed works
- **Temporary construction compound:** located in the car park to the north and west of the Civil and Mains Depot Office. This area would be used for vehicle parking and equipment storage, and the area, nor adjacent buildings, would be physically impacted by the proposed works.

The subject sites and temporary construction facilities are shown in Figure 1.

These modifications require works to a number of supporting and ancillary infrastructure elements in the Precinct. Train movements within the Precinct are currently manually operated under the control of a shunter.

The infrastructure and services required to support the commissioning, stabling and maintenance of the New Intercity Fleet includes, but is not limited to, office, administrative, and amenity facilities and services, workshops, power, water, electricity, telecommunications, access roads, car parks, crew walkways, lighting, security fencing, train radio equipment, stormwater, storage areas and stores.

The project would continue to utilise the existing supporting infrastructure and services where possible. However, minor modifications to the existing infrastructure as well as new infrastructure will be required to support the project.

The overall effect of the modification works will be to enable the Precinct to be operated in the same manner as it currently operates with minimal change to Sydney Trains and NSW TrainLink operational and maintenance processes whilst also being suitable for the New Intercity Fleet trains.

1.3 Legislative context

1.3.1 Heritage Act 1977

The NSW *Heritage Act 1977* (Heritage Act) is the primary piece of State legislation affording protection to heritage items (natural and cultural) in New South Wales. Under the Heritage Act, 'items of environmental heritage' include places, buildings, works, relics, movable objects and precincts identified as significant based on historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic values. State significant items can be listed on the NSW State Heritage Register (SHR) and are given automatic protection under the Heritage Act against any activities that may damage an item or affect its heritage significance.

Under the Heritage Act all government agencies are required to identify, conserve and manage heritage items in their ownership or control. Section 170 requires all government agencies to maintain a Heritage and Conservation Register that lists all heritage assets and an assessment of the significance of each asset. Agencies must also ensure that all listed items are maintained with due diligence in accordance with State Owned Heritage Management Principles approved by the Government on advice of the Heritage Council of NSW. These principles serve to protect and conserve the heritage significance of items and are based on NSW heritage legislation and guidelines.

The Heritage Act also provides protection for 'relics', which includes archaeological material or deposits. Section 4 (1) of the Heritage Act (as amended in 2009) defines a relic as:

"...any deposit, artefact, object or material evidence that:

(a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and

(b) is of State or local heritage significance"

Sections 139 to 145 of the Heritage Act prevent the excavation or disturbance of land known or likely to contain relics, unless under an excavation permit. Section 139 (1) states:

A person must not disturb or excavate any land knowingly or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, damaged or destroyed unless the disturbance is carried out in accordance with an excavation permit.

Excavation permits are issued by the Heritage Council of NSW, or its Delegate, under Section 140 of the Heritage Act for relics not listed on the State Heritage Register or under Section 60 for relics listed on the SHR. Minor works that would have a minimal impact on archaeological relics may be granted an exception under Section 139 (4) or an exemption under Section 57 (2) of the Heritage Act.

Conservation Management Plans

Under the Section 38A of the Heritage Act, the Heritage Council may endorse Conservation Management Plans for items listed on the State Heritage Register. The management of the Precinct is administered under several Conservation Management Plans.

The Australian Technology Park Conservation Management Plan (GML 2013) is applicable to the north-eastern portion of the Precinct. The remainder of the Precinct is not administered under an endorsed Conservation Management Plan. The Australian Technology Park Conservation Management Plan outlines a number of conservation and heritage assessment policies for potential work in the Australian Technology Park area.

1.3.2 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) establishes the framework for cultural heritage values to be formally assessed in the land use planning and development consent process. The EP&A Act requires that environmental impacts are considered prior to land development; this includes impacts on cultural heritage items and places as well as archaeological sites and deposits. The project is subject to assessment under Part 5 of the EP&A Act.

The EP&A Act also requires that local governments prepare planning instruments (such as Local Environmental Plans and Development Control Plans [DCPs]) in accordance with the EP&A Act to provide guidance on the level of environmental assessment required. The Precinct falls within the boundaries of the City of Sydney local government area. Schedule 5 of the *City of Sydney Local Environmental Plan 2012* (City of Sydney LEP) includes a list of items/sites of heritage significance within this LGA.

The Precinct is also within the boundary of the *State Environmental Planning Policy (SEPP) (State Significant Precincts) 2005*. The SEPP applies to the Redfern-Waterloo Authority land. The City of Sydney LEP does not apply to land scheduled under the SEPP (State Significant Precincts) 2005.

1.4 Statutory heritage listings

The Precinct is listed on multiple heritage registers as outlined in Table 1.

Table 1: Results of register search for the Precinct






Register	Listing
World Heritage List	The Precinct is not registered on the World Heritage List
National Heritage List	The Precinct is not registered on the National Heritage List
Commonwealth Heritage List	The Precinct is not registered on the Commonwealth Heritage List
State Heritage Register	The Precinct is registered on the State Heritage Register. The following listings apply to the Precinct (Figure 2): <ul style="list-style-type: none"> • The Eveleigh Railway Workshops are listed on the SHR as item no. 01140. • The Eveleigh Railway Workshops Machinery (Movable Heritage) is listed on the SHR as item no. 01141.
Section 170 Registers	The Precinct is listed on the RailCorp s170 heritage and conservation register. The following listings apply to the Precinct: <ul style="list-style-type: none"> • RailCorp s170 Heritage and Conservation Register, Eveleigh Railway Workshops (SHI# 4801102) • RailCorp s170 Heritage and Conservation Register, Eveleigh – Large Erecting Shop (SHI# 4805751) • RailCorp s170 Movable Heritage Register, item FRN 2186 – Second-class Sitting / Buffet Car (SHI# 4807101)
City of Sydney Local Environmental Plan 2012	The Precinct is not listed on the City of Sydney LEP 2012
State Environmental Planning Policy (State Significant Precincts 2005)	Items within the Precinct are listed on the SEPP under the Redfern-Waterloo Authority. The location of the Redfern-Waterloo Authority SEPP is illustrated in Figure 3

Figure 2: Items with Heritage Significance located in or near Precinct



PLAN
NOT TO SCALE

LEGEND

	LITTLE HERITAGE SIGNIFICANCE		EXCEPTIONAL HERITAGE SIGNIFICANCE
	MODERATE HERITAGE SIGNIFICANCE		LIMIT OF WORKS
	HIGH HERITAGE SIGNIFICANCE		

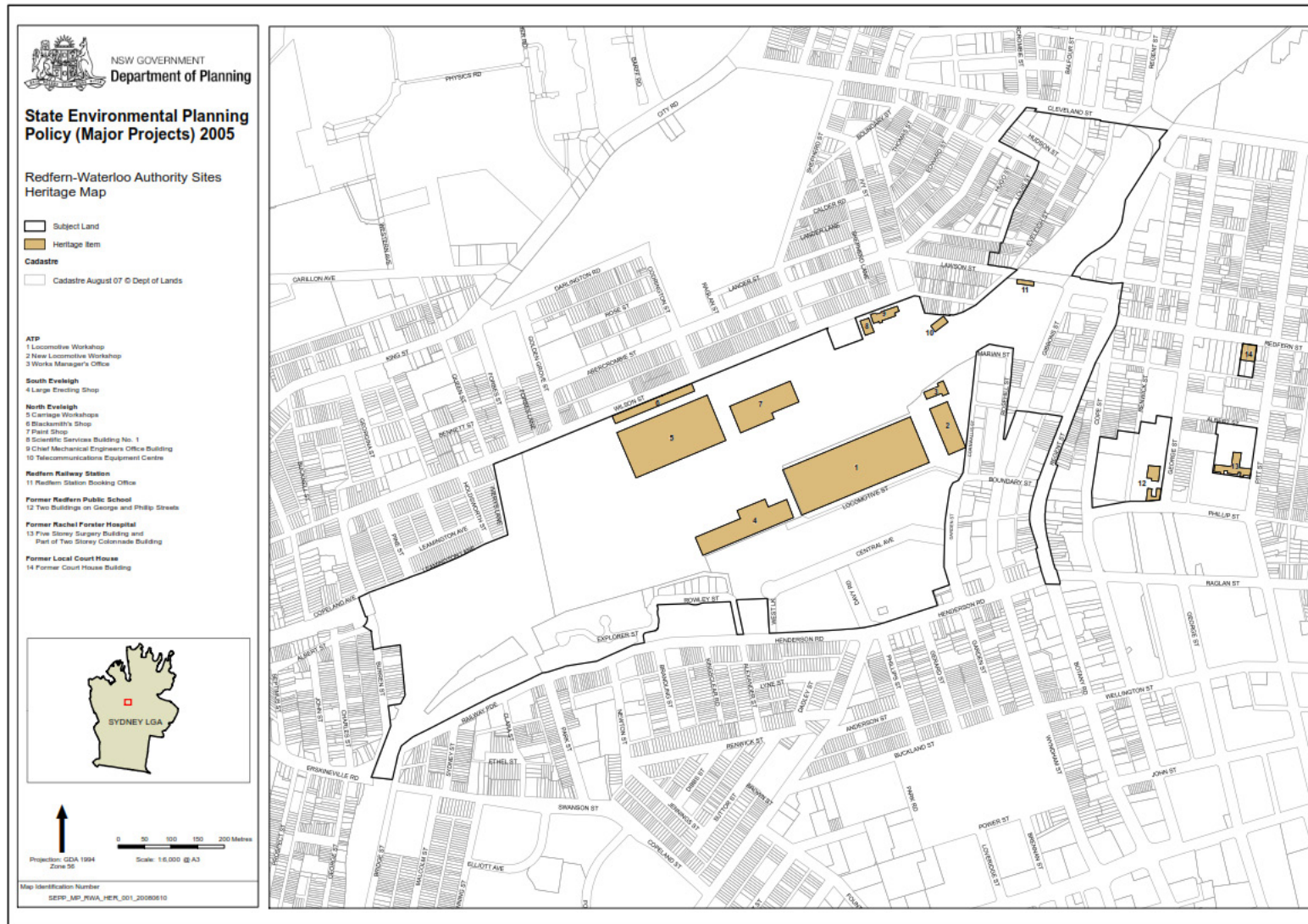


Transport for NSW
Eveleigh Maintenance Centre

Items with Heritage Significance
located in or near Precinct

Job Number | 21-25210
Revision | A
Date | 15 Feb 2017
SK - H002

Figure 3: SEPP (State Significant Precincts) 2005



1.5 Assessment methodology

This report aims to:

- provide a succinct historical summary of the Precinct
- assess the heritage significance of portions of the Precinct that may be impacted by the project
- assess the significance of archaeological remains located within the footprint of each subject site
- assess the degree of impact from the project on items of built heritage and archaeological remains
- provide mitigation measures and advice on appropriate approval pathways for the project

Built structures, items of industrial equipment, view lines, services and ground conditions were examined within each subject site. In addition, built structures and view lines were also inspected in areas around the subject sites, to ascertain potential indirect visual impacts to heritage items.

1.5.1 Report authorship and acknowledgements

This report was prepared by Duncan Jones (Heritage Consultant) and Michael Lever (Senior Heritage Consultant) with contributions by Josh Symons (Principal). Josh Symons provided management input and review.

Assistance with obtaining archival materials for the Eveleigh Railway Workshops was provided by Bill Phippen of the Railway Resource Centre, Redfern NSW.

1.5.2 Limitations

This report does not include an assessment of Aboriginal heritage values or Aboriginal archaeological potential.

2.0 HISTORICAL AND ENVIRONMENTAL CONTEXT

2.1 History of the Eveleigh Rail Precinct

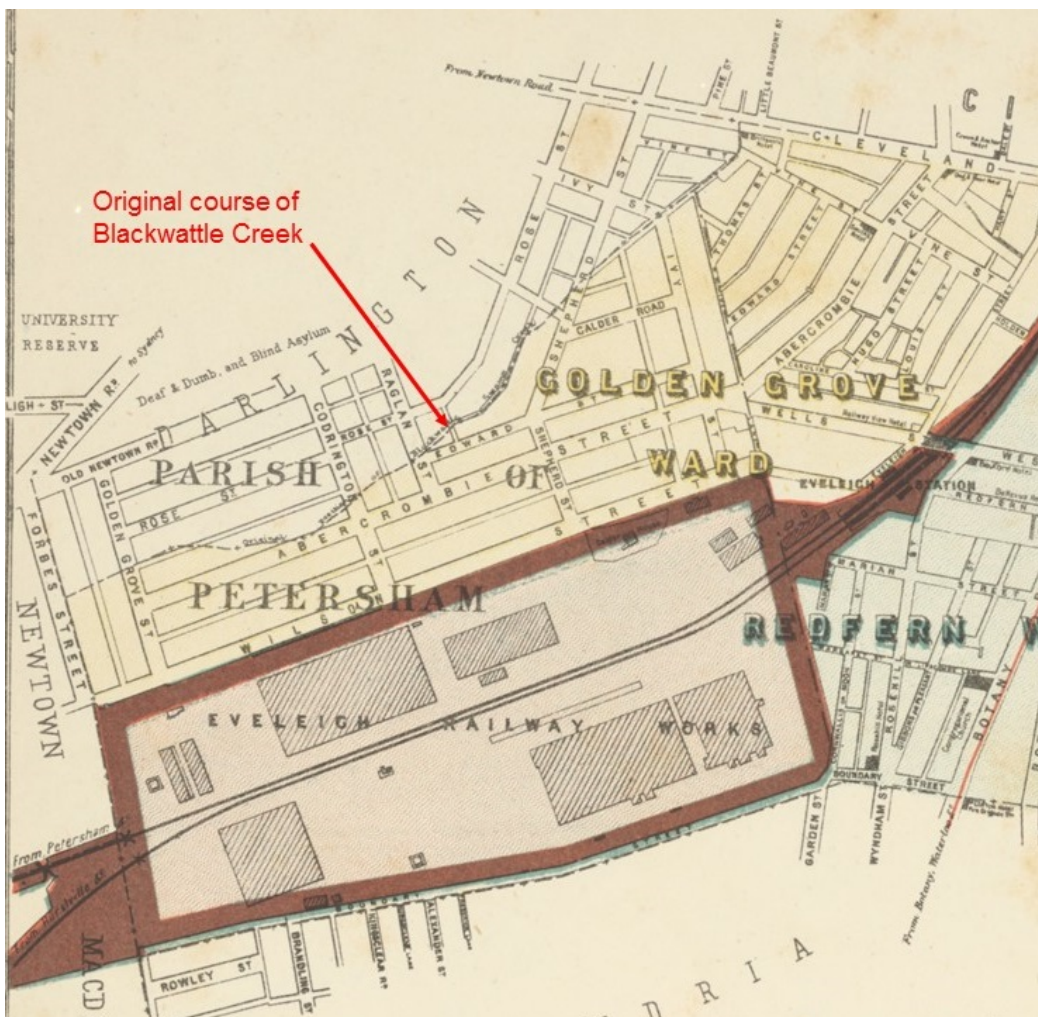
2.1.1 Aboriginal history

The impact of colonisation on Aboriginal people of the Sydney area was rapid and immense. European diseases spread rapidly and laid waste to a large part of the Aboriginal community. Almost no detailed recorded evidence is available therefore on Aboriginal lifestyles in the Sydney area at the time of contact with Europeans.

At colonisation, the broader Sydney region was inhabited by speakers of the Darug / Eora language groups. The Gadigal / Cadigal people are a part of this language group and were historically documented as occupying the area of the site location (Attenbrow, 2010).

The site location is situated on the Botany Sands. This is a young but deep formation of approximately 40 metres of fine sands in undulating dunes. These developed due to fluctuating sea levels and shore lines. They contained numerous wetlands and creeks that would have facilitated habitation. The site location is generally within 200 metres of the historically mapped course of Blackwattle Swamp Creek (Higginbotham, Robinson & Harrison, 1886) (Figure 4).

Figure 4: Detail of 1886 map of the suburb of Redfern, showing Eveleigh Rail Yards and the former course of Blackwattle Creek



2.1.2 Early settlement and development

Situated on the fringe of the newly established City of Sydney, the Redfern and Eveleigh area was an attractive open woodland with expanses of grass and wildflowers (Benson & Howell, 1990). The study area consisted of undivided Government lands until around 1817, when large acreages were granted to W. Chippendale, W. Redfern and W. Hutchinson.

Despite its natural charms, Redfern was not an attractive area for settlers to reside. It was on sandy land and distant from the city. Later, with the effective stopping of flow in the Tank Stream in 1850 and government efforts to move noxious industries away from the city centre, many polluting trades moved to Redfern (Diggs & Bickerton, 2016).

The area of Redfern had previously been known as Robert's Farm and Boxley's Swamp (Futurepast Heritage Consulting, 2014a). These previous names indicate the well-watered and agriculturally viable nature of the broader Redfern area which continued to attract market gardeners. While areas of Sydney surrounding water, transport and existing hubs developed rapidly, the Redfern area remained mapped as predominantly open and undeveloped land up to the 1850s (Thorpe, 1990).

One local account in the 1850s described the approaches to Sydney along the southern extent of George Street as resembling a trip through English market gardens (Barnard, 1956). In a precursor to the eventual ethnic diversity of Redfern, Chinese market gardeners dominated the local garden industry there (NSW Heritage Branch, 2009). The often unkempt nature of Redfern is reflected in an appeal to the Minister for Lands in 1864. A deputation of local residents informed the minister that open lands at Cleveland Paddocks (currently Prince Alfred Park) were not usable as parklands. Rather, they were a hazardous location due to an unmanaged "very dangerous creek" running through it (Empire Newspaper, 1864).

The subsequent industrial and residential development of Redfern has been described as the story of a backwater, close enough to the City of Sydney to be viable for industry, transport, and low cost-housing, yet far away enough that the sensibilities of wealthier citizens would not be upset by their proximity (Thorpe, 1990).

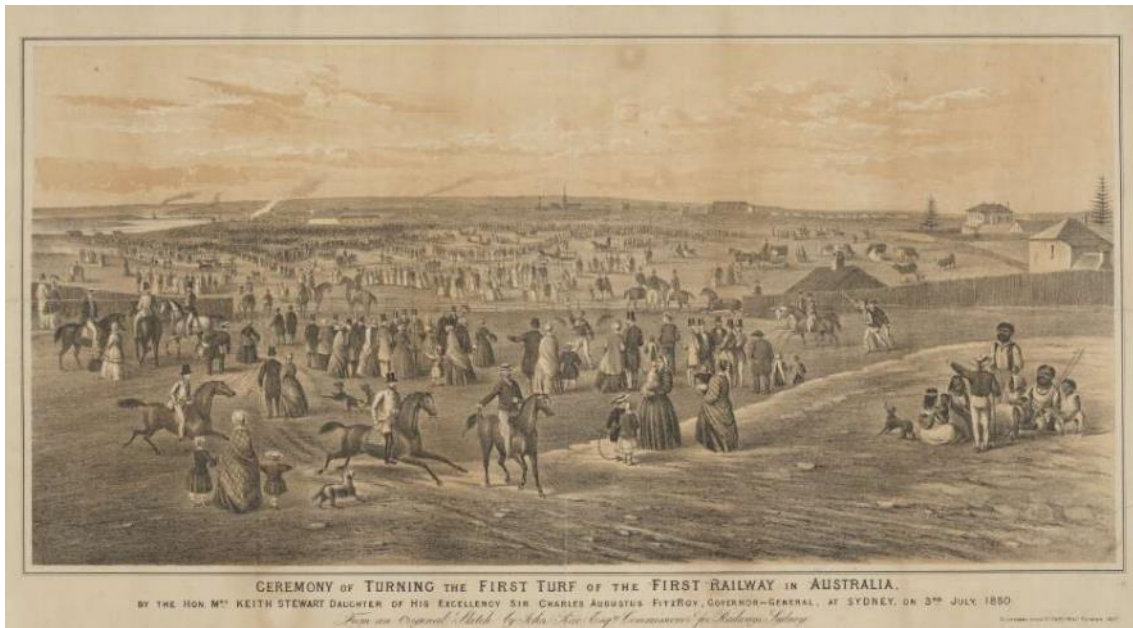
The later demographic and built character of Redfern is tightly bound with the history of rail in the suburb, and it is in fact difficult to locate historical studies of Redfern which do not primarily focus on rail history.

2.1.3 Development of the railway line

The opening of railway services in early NSW was an eagerly anticipated and momentarily celebrated popular occasion. The importance of rail to the inhabitants of the early colony is worth emphasis, and deserves some attempt at depicting the ceremony with which rail projects were initiated (Figure 5). This is particularly so in an era when little popular excitement is usually generated by the opening of public transport infrastructure.

On 3 July 1850 amid thronging crowds, waving banners and military bands playing the national anthem repeatedly, Mary Stewart (only daughter of Charles Fitzroy) turned the first sod of the first railway in Sydney, running between Sydney and Parramatta (Lachlander and Condolobin and Western Districts Recorder, 1922). A specially commissioned ornate and engraved spade was used, bearing the joint arms of the Railway and the Fitzroy family. The first sod was tastefully removed in a special barrow by no less a figure than Sir Charles Cowper – president of NSW Rail. Cowper returned to deliver an address to Governor Fitzroy (who naturally spoke at length in reply). "Every, one seemed joyous. Neighbour shook hands with neighbour, and all congratulated each other that this was a great occasion" (Freeman's Journal, 1850).

Figure 5: Ceremony of Turning the First Turf of the First Railway in Australia (National Library of Australia)



The rail line did not open until 26 September 1855, when after an unofficial test run earlier in the day (apparently to establish the safety of the line), Governor Denison departed Sydney to a 21-gun salute.

The railway was originally serviced in Sydney by a station named 'Redfern' near Devonshire Street. This Sydney terminus was rebuilt and relocated twice, once in 1874 and finally in 1906 as the current Central Station. In 1885 platforms from a dismantled station called Eveleigh were reconstructed at the current location of Redfern Station. This station at Redfern continued under the name Eveleigh until 1906 when it was renamed Redfern (NSW OEH, 2016).

Through this period, passenger traffic continued as a large part of Redfern's daily transport load. However, it was eventually concluded that Redfern Station was too far from the Sydney Central Business District to be an effective stage for city-bound commuters. In 1906, the new Central Station was opened in its current location. While this would not have diminished the volume of traffic passing through Redfern, it did impact drastically on the use of Redfern Station and its surrounds.

Redfern Station is currently a major rail hub of 12 platforms, through which all but one city rail line passes. Sydney Railways have played a critical role in the nature of the immediate surrounds of stations and rail lines, in the opening up of the wider Sydney region for residential settlement, and in facilitating construction of industry infrastructure at a distance from harbours and water-borne transport.

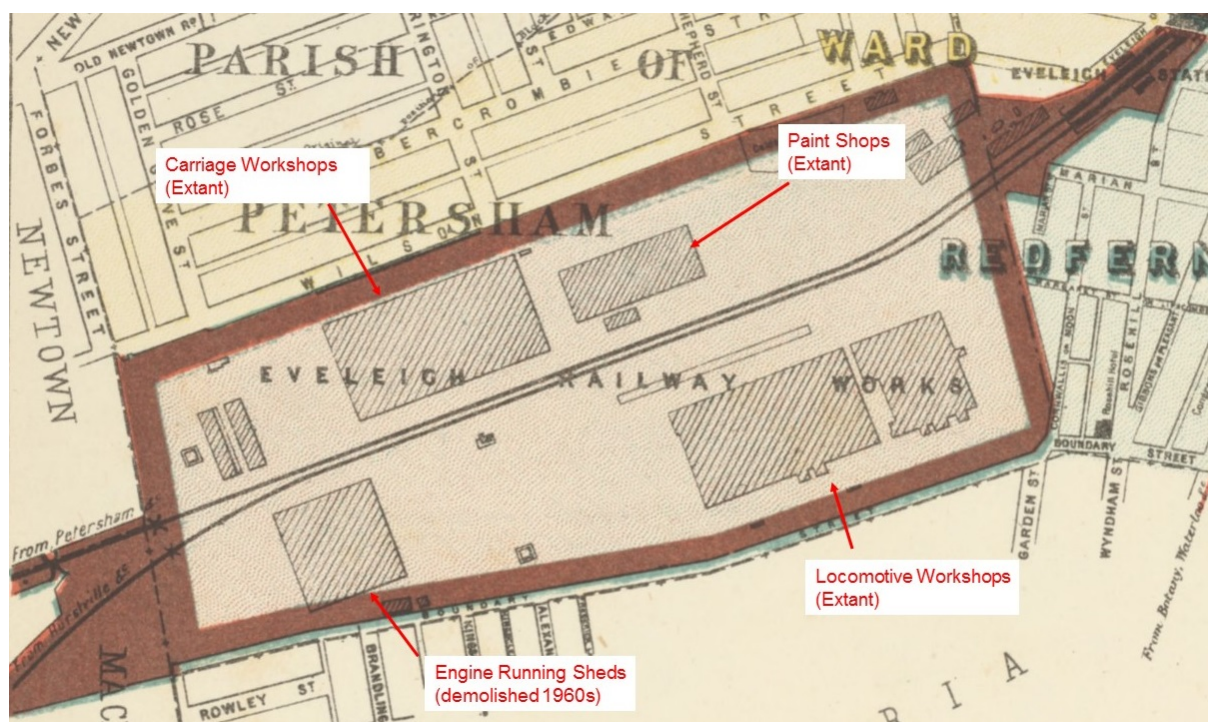
2.1.4 Construction of the Eveleigh Railway Workshops

The location of the previous Central Station and the current Central Station were too close to the city for the construction of sizeable rail maintenance infrastructure due to existing urban development. In 1875 a site at Eveleigh was chosen for a new workshop complex. In 1878 negotiations commenced for suitable land, and completed in 1880 with the resumption of land including 65 acres from the estate of John Chisholm, upon which stood "Calder House". Constructed in 1820, it had been used as a boy's school.

Clearance of land adjacent to Redfern Station commenced in 1880, with considerable effort required to accommodate the local sandy soils (Futurepast Heritage Consulting, 2014a). Initially, bores were sunk to provide water for the steam locomotives, however these were unsuccessful.

At first, three large buildings were constructed: On the southern side of the railway line, engine running sheds (now demolished) were built for refuelling, minor repairs and servicing. Also on the southern side of the railway line, an engine manufacturing and repair workshop were constructed. On the northern side of the railway line, a rolling stock repair workshop was built. A number of ancillary timber sheds were constructed, however by 1884 these had been demolished and replaced with permanent buildings. Structures present in 1886 are illustrated in Figure 6.

Figure 6: Map of principal structures at Eveleigh Rail Yards in 1886. Source: (Higginbotham, Robinson & Harrison, 1886)



In 1886 works commenced on the Carriage and Wagon Shops, and in 1887 works commenced on the Chief Mechanical Engineers Residence (Thorpe, 1990). In the 1890s, new infrastructure included carriage sheds, timber drying sheds, coal fuelling stage, a new erecting shop and a foundry. By the end of the nineteenth century, the Eveleigh Rail Yard was the primary rail repair facility for NSW Rail.

2.1.5 Twentieth century development of the railway yard

Eveleigh Rail Yard was designed and equipped for the manufacture and maintenance of steam locomotives. The decline of steam saw the decline of much of the yard. The following key dates are relevant to the built structures at Eveleigh Rail Yards (NSW Heritage Branch, 2009):

- 1907 – new Locomotive Shop was commissioned to allow manufacture of steam locomotives at Eveleigh
- 1917 – (approximately) Alexandria Goods Yard constructed
- 1925 – manufacture of locomotives ceased, northern bay of Running Shed demolished to make space for additional rail and sidings
- 1940 to 1943 – alterations to bays 5 and 8 for manufacture of munitions

- 1945 – manufacture of steam locomotives recommenced
- 1963 – steam locomotion discontinued
- 1965 – Running Shed demolished to make way for ACDEP shed (now OSCAR Shed)
- 1988 - Eveleigh Railway Yard closed
- 1988 to 1994 – Paddy's Market occupies bays 5 to 15
- 1988 to present – demolition of buildings including the Pattern Shed, Foundry, Smith's Shops and the Wheel Press Shop.

From the early 1960s onwards, the scale of activity at the Eveleigh Rail Yard decreased considerably. Most of the southern portion of the yard had been declared surplus to railway needs by the 1980s. The former Alexandria Goods Yard (to the south of the study areas) had been cleared and was used as a parking area for Paddy's Markets while they were occupying the Locomotive Workshop between 1988 and 1994 (Figure 7). Other portions of the Southern Precinct have been redeveloped for public housing. (Schwager Brooks and Partners, 1994).

Figure 7: 1991 Aerial photograph of Eveleigh Rail Yards



2.2 Built heritage and landscape

An inspection of the site was undertaken by Artefact Heritage on 25 October 2016. The aim of this site inspection was to assess the extent of the project; examine the built environment that would be affected by the project at Eveleigh Rail Yards; and to conduct a preliminary heritage analysis of the Precinct.

2.2.1 Location and character of the Precinct

The Precinct is located on both the northern and southern sides of the Main Suburban Railway Line, about 250 metres south-west of Redfern Station. The Precinct is divided into three distinct areas, the Carriageworks facility to the north of the railway line (now an Arts and Entertainment Precinct); the Australian Technology Park in the eastern portion of the Precinct south of the railway line (adapted

and in use as a commercial space); and the Eveleigh Rail Yard in the western portion of the Precinct south of the railway line (presently in use as a rail stabling and maintenance facility). The site inspection focussed on the subject sites located predominantly in the Eveleigh Rail Yard, with a small area in the northern portion of the Australian Technology Park also inspected. The Carriageworks to the north of the railway line was not inspected.

While the size of the overall Precinct is about 51 hectares, the combined construction footprint for the project across the three subject sites is about 1.75 hectares.

The vast majority of the Precinct comprises buildings, rail lines and yards in active use for the maintenance of rail engines and rolling stock. The Precinct has been progressively developed over time to provide functional maintenance infrastructure, and this has included ongoing modernisation of utilities and services. As such, there is a mixture of buildings of various periods and architectural styles across the Precinct.

The overall character of the Precinct remains reflective of the nineteenth-century rail and rail infrastructure program that was crucial to the development of the infrastructure and economy of NSW. The continuation of the Precinct's use as a rail maintenance facility today is consistent with the history of the site.

2.2.2 Subject Site 1

The main structure within Subject Site 1 is the Welding Qualifications Centre, located directly to the north of the OSCAR Maintenance Shed. The Welding Qualifications Centre is a single-storey rectangular brick building, approximately 35 metres by 15 metres in extent (Figure 8). The southern wall directly abuts the OSCAR Maintenance Shed. The building is steel framed with infilled brick between steel columns. There is evidence that some material has been recycled from earlier buildings on-site, with machine-pressed brick and a wooden door similar to those used at the locomotive workshops (Figure 9). A single segment of rail line runs through the northern part of the building. An approximately one metre deep trench formerly used for train maintenance work is located below the line (Figure 10). Industrial equipment is present throughout the building to support its present use as a training centre.

Two railway lines, Engineering Roads 1 and 2 are located to the east of the Welding Qualifications Centre. Buffer stops are present on these lines. The northern line, Engineering Road 1, is located on a raised concrete platform above the lower Engineering Road 2. A decanting facility is located directly to the north of Engineering Road 1 (Figure 11). This consists of a cylindrical storage tank covered by a steel roof.

The active rail corridor, with multiple elevations, is located directly to the north of Subject Site 1. The elevation of the active rail lines obstructs view lines to the Carriageworks area to the north of the rail corridor.

Two memorial plaques for former rail workers are located approximately 30 metres to the west of the Welding Qualifications Centre (Figure 12). These metal plaques are set in concrete near the northern wall of the OSCAR maintenance shed.

Figure 8: Eastern entrance to Welding Qualifications Centre, west aspect



Figure 9: Wooden carriage door at Welding Qualifications Centre, north aspect



Figure 10: Former rail line and maintenance pits at Welding Qualifications Centre, east aspect



Figure 11: Engineering Roads 1 and 2 with Gas Tank Shelter at right of image, east aspect



Figure 12: Setting for memorial plaques (outlined in red), west aspect



2.2.3 Subject Site 2

The main structure within Subject Site 2 is the Millennium Shed, a maintenance facility for rolling stock. The Millennium Shed consists of the southern half of the larger Eveleigh Maintenance Centre, with the northern half consisting of the OSCAR maintenance shed. The building is about 230 metres by 30 metres in size and consists of concrete panels overlying a steel frame. This building has four active rail lines (Maintenance Roads 5 through 9) which enter the building from open eastern portals (Figure 13).

The five roads inside the Millennium Shed are raised above ground level, with maintenance pits below each engineering road. Raised gantry-ways are located between the maintenance roads. Overhead wiring is affixed to the interior of the Millennium Shed roof and extends the length of the Maintenance Roads 8 and 9 (Figure 14). Overhead wire does not extend the entire length of the Maintenance Roads 6 and 7.

Subject Site 2 extends for up to 25 metres to the east of the eastern portals of the Millennium Shed over open rail track. There are two overhead wiring structures in this area (Figure 15).

Security fencing and vegetation is located to the south of the Millennium Shed. A steel-framed train cleaning shed is located to the east of the subject site (Figure 16). The OSCAR maintenance shed is located to the north of the open portion of Subject Site 2.

Figure 13: Eastern portals of Millennium Shed, west aspect



Figure 14: Overhead wiring and gantry-ways inside the Millennium Shed, west aspect



Figure 15: Overhead wiring structures east of the Millennium Shed, east aspect



Figure 16: View east from Millennium Shed, with train washing shed in right of image



2.2.4 Subject Site 3

Subject Site 3 is located at the eastern boundary of the Eveleigh Rail Yard and the Australian Technology Park.

The area of Subject Site 3 consists of a rail siding with an existing buffer stop and a concrete hardstand. This area is bounded to the south and east by security fencing, with the locomotive workshops associated with the Australian Technology Park situated directly behind this fencing (Figure 17). To the north of the existing siding the variable elevation of the active rail corridor obscures view lines to the Carriageworks area to the north.

The portion of Subject Site 3 within the Australian Technology Park consists of concrete pavement with disused rail lines running east-west through the area. A heritage train carriage (the “FRN 2186 Second Class Sitting / Buffet Car, RailCorp s170 item, SHI# 4807101) is located in the centre of this area (Figure 18). The carriage is approximately 18 metres long and situated on the disused rail line.

A garbage bin compound is located in the north of this area secured by barrier fencing, with screening vegetation located behind the compound. These items obstruct northerly views towards the Carriageworks area. The Locomotive Workshops are located to the southwest of this portion of the subject site, and are visible above and behind security fencing and tree foliage. Innovation Plaza, a paved pedestrian walking and seating area, is located to the south of this portion of the subject site.

The Work Managers Office, which is listed as an element of high significance on the Eveleigh Railway Workshops heritage listing, is located about seven metres to the east of the subject site (Figure 19). The building consists of a two-storey late-nineteenth office building.

Figure 17: Rail siding north of Locomotive Workshops, with buffer stop and security fencing visible. East aspect.



Figure 18: 'Heritage Train' FRN 2186 Second Class Sitting / Buffet Car, south-west aspect



Figure 19: Work Managers Office, east aspect



3.0 EXISTING ENVIRONMENT

3.1 Built heritage

3.1.1 Eveleigh Railway Workshops

The Eveleigh Railway Workshops are listed on the SHR and RailCorp s170 register and elements are listed on the heritage schedule of the State Environmental Planning Policy (State Significant Precincts) 2005. The SHR heritage curtilage of the Eveleigh Rail Workshops is about 51 hectares in size. The Eveleigh Railway Workshops have a wider curtilage that encompasses the entire footprint of the former rail workshops site (illustrated on Figure 2 on page 7). Less than half of the area of the listed site houses rail stabling and maintenance operations today.

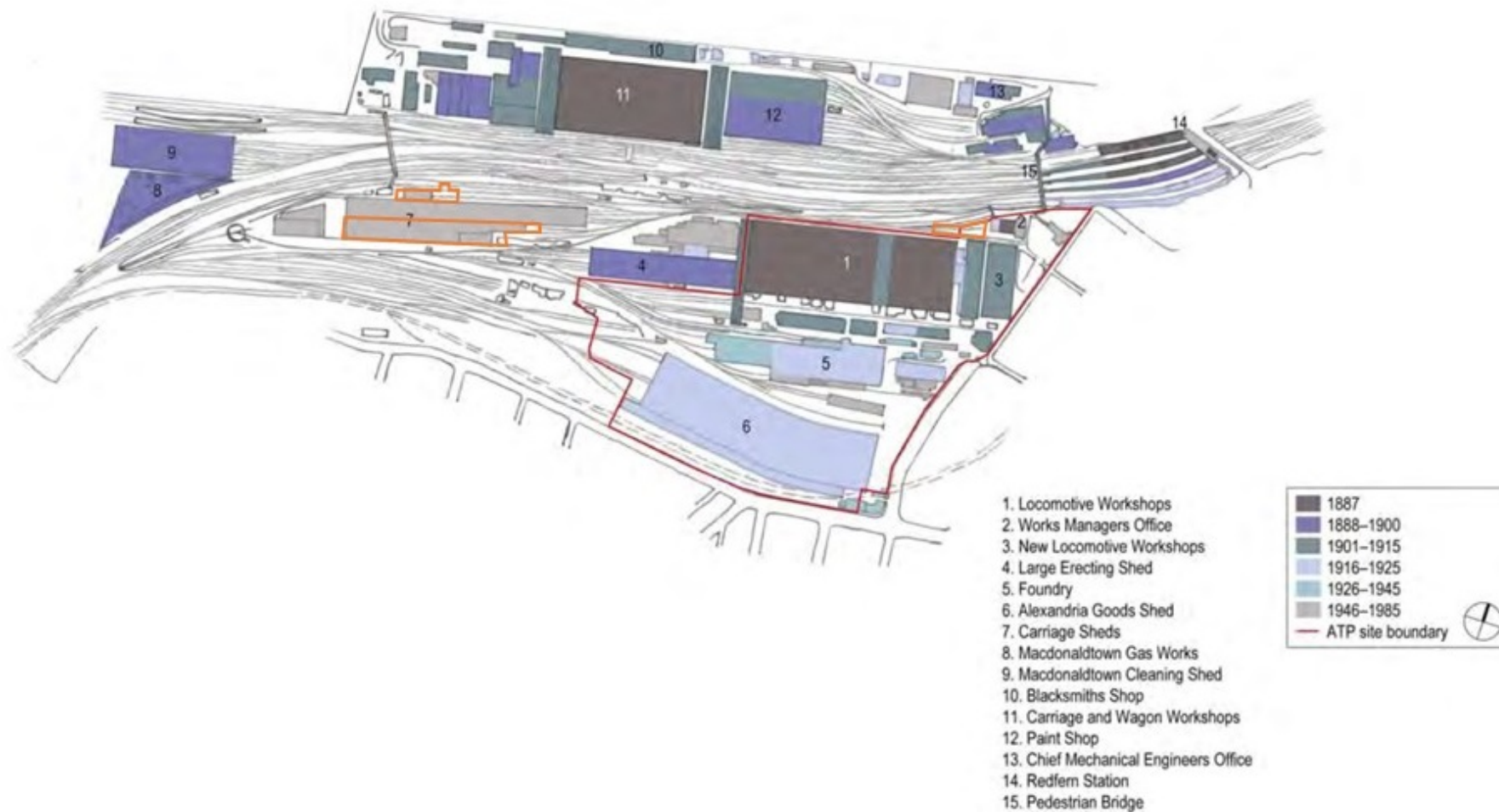
3.1.2 Description

The Eveleigh Railway Workshops were initially constructed between 1882 and 1897, however built development in the Precinct has been ongoing to cater for technological changes in rail transport. Changes to the Precinct have also resulted from the varying utilisation rates of the portions of the facility. With the development of other rail maintenance facilities in Sydney during the twentieth century, the central role of Eveleigh declined until large areas of the former facility were abandoned. Several of these formerly abandoned buildings have since been repurposed for commercial and community uses (e.g. Locomotive Workshops and Paint Shop).

The principal structures within the Precinct include the late nineteenth century buildings of the Locomotive Workshops, Paint Shop, Carriage and Wagon Workshops and the Large Erecting Shop. These buildings are large, impressive industrial buildings incorporating detailed brickwork. An overview of the principal historic buildings in the Precinct is provided in Figure 20.

Other than the prominent historical brick structures, the nature of the Precinct is reflected in the functional and industrial character of the various maintenance associated buildings which are distributed throughout it. While relatively recent structures such as the Millennium and OSCAR maintenance sheds (originally the ACDEP sheds) were constructed in the 1960s of concrete and steel, their ongoing use to support rail operations is consistent with the heritage character of the item.

Figure 20: Plan of major structures in the Precinct, with year of construction. Subject sites are outlined in orange. Note that structure no. 6 (the Alexandria Goods Shed) is no longer present. Source: GML 2013: 15.



3.1.3 Significance assessment

The following assessment of significance has been adapted from the State Heritage Register¹ and RailCorp s170 heritage register² entries for the Eveleigh Railway Workshops.

Table 2: Assessment of significance for the Eveleigh Railway Workshops

Criterion	Explanation
A – Historical Significance	<ul style="list-style-type: none"> The Precinct and its workshops were an important part of the NSW rail network. This was instrumental in the development of the state during the 19th and 20th century. The construction of the workshops influenced the development of the local area (which was developed for worker's housing) both by providing employment and by its bulk and presence, starting bells and sirens. The rail yards were associated with developments in working conditions now crucial to the Australian cultural identity. The yards had an important association with the labour movement. The place was seen initially as a positive instrument of state socialism and in later periods as the site of important labour actions and of restrictive work practices. <p>The Eveleigh Railway Workshops are considered State significant under this criterion.</p>
B – Associative Significance	<ul style="list-style-type: none"> The concept of the Precinct was conceived by Whitton, the 'father' of the NSW railways, and were an integral part of his NSW rail system. Whitton's designs were executed in detail by George Cowdery. The commencement of works at the Eveleigh Rail Yards was formally opened by Governor Fitzroy and his related aides. <p>The Eveleigh Railway Workshops are considered State significant under this criterion.</p>
C – Aesthetic or Technical Significance	<ul style="list-style-type: none"> The Precinct has a strong industrial character generated by the rail network itself, by the large horizontal scale of the buildings, the consistent use of brick and corrugated iron, the repetitive shapes of roof elements and of details such as doors and windows and because of the uniform grey colours These buildings have landmark quality, locally as prominent elements in the Redfern/Eveleigh area landscape, and more widely serves as an indicator of proximity to the Sydney Central Business District, for thousands of commuters. The major buildings from the original 19th century development of the site are well designed, detailed and built exhibiting a high degree of unity of design, detailing and materials. <p>The Eveleigh Railway Workshops are considered State significant under this criterion.</p>

¹ SHI Entry for State Heritage Register item "Eveleigh Railway Workshops" (SHR# 01140) accessed online 23 January 2017, <http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5045103>

² SHI Entry for RailCorp s170 item "Eveleigh Railway Workshops" (SHI# 4801102), accessed online 23 January 2017, <http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4801102>

Criterion	Explanation
D – Social Significance	<ul style="list-style-type: none"> The Workshops were one of the largest employers in Sydney at the turn of the century, declining only in the latter half of the 20th century. It demonstrates the historical capacity and skills of Australian industry and workers. The place is significant to current and past railway workers and forms part of collective identity through personal and official narratives. Although no longer operating as a workshop for the construction of locomotives and carriages, the place continues in use as a rail yard and for train maintenance. It maintains symbolic value for the community as a current and former workplace and as a place that provided economic input into the local area. It has strong symbolic ties with existing trade unions. <p>The Eveleigh Railway Workshops are considered State significant under this criterion.</p>
E – Research Potential	<ul style="list-style-type: none"> The Eveleigh Rail Workshops has considerable research potential for understanding the operation of railway workshops. This potential is enhanced by the extent of archival material available and through the personal narratives of living former workers. The Eveleigh Railway Workshops have unique educational value in themselves, and through their proximity to the Australian Technology Park and its associated tertiary institutions. The Eveleigh Railway Workshops can contribute to understanding the development of current work practices through an understanding of the cultural continuity between 19th century and 21st century industry and practices. Study of the Eveleigh Railway Workshops has potential to inform on the development and history of labour movements, labour relations, and the nature of work practices in the 19th and 20th centuries <p>The Eveleigh Railway Workshops are considered State significant under this criterion.</p>
F – Rarity	<ul style="list-style-type: none"> The size, quality, duration of use, and nature of the built fabric at the site is unique in the state of NSW <p>The Eveleigh Railway Workshops are considered State significant under this criterion.</p>

3.1.4 Statement of significance

The Eveleigh Railway Workshops are of State heritage significance.

The following statement of significance has been sourced from the RailCorp State Heritage Inventory entry³ for the Eveleigh Railway Workshops:

The Eveleigh Railway Workshops complex is of exceptional heritage significance to the state of NSW for its major contribution to the establishment, operation and growth of the NSW railways, which was essential to the growth and development of NSW from the late 19th century onwards. The Workshops complex is significant as a rare remaining example of a relatively intact, large-scale 19th century railway workshops that retains unity of character as well as continued links to railway operations for over 100 years to this day.

Historically the site is important for its links to an early phase of railway development in NSW, with onsite evidence remaining intact from as early as 1887. The remaining tangible evidence and intangible site values reflect the technological, social and cultural development of the NSW railways, as well as

³ Ibid.

broader important historical events. Though many structures and items have been removed, the remaining site evidence reads as a living interpretation of the technological, administrative, social and cultural developments in over 100 years of railway operations in NSW, including the major transition from steam to diesel and electric powered train operation. The layout of the extant site elements is also indicative of the functional and administrative arrangements during the period of the site's operation.

The Workshops complex is significant for its associations with important railway figures, namely John Whitton, Engineer-in-Chief for the NSW Railways between 1856 and 1899, who conceived the workshops, and George Cowdrey, Engineer for Existing Lines, who executed Whitton's vision.

The site is of considerable aesthetic and technical significance for the high-quality design and construction of the original buildings, which are substantially intact and display finely detailed polychrome brickwork and well-articulated facades that embody the pride of the late Victorian era. The simple, strong functional forms of the buildings have landmark quality, not only as important townscape elements in the Redfern/Eveleigh area, but as part of the visual train journey of thousands of passing commuters. The combination of the southern locomotive sheds at the Australian Technology Park and the former Carriage and Wagon Workshops provide a distinctive landmark in the Sydney landscape and define views to and from the site.

The Workshops are of social value to generations of railway employees past and present as a workplace producing high quality craftsmanship utilising state-of-the-art technology, as well as being a heritage icon for current local communities. The Workshops were associated with cultural and social developments in working conditions now crucial to the Australian cultural identity, for example, the weekend. They had an important association with the labour movement. The place was seen initially as a positive instrument of state socialism and in later periods as the site of important labour actions and of restrictive work practices.

The Workshops represent significant research potential for their ability to inform through remaining physical, documentary and oral evidence the functions and operations of a large-scale 19th/20th century railway workshops.

Eveleigh Railway Workshops is significant for its rarity in NSW as a large and relatively intact historic railway workshop. It is representative of Victorian era railway workshops and is significant as one of the best surviving examples of railway workshop complexes from this era.

While many items have been removed in the process of modern site development, the site still holds an exceptional and rare collection of historically and technically significant heavy machinery, the majority of which is housed in the Australian Technology Park buildings on the south side of the main railway line.

3.1.5 Other heritage listed items

A number of other heritage listed items are located in or near the Precinct. These items are summarised in Table 3 below.

Table 3: Summary of other heritage listed items in or near the Precinct

Item	Register Listing	Significance	Description	Location of items relative to the subject sites
Eveleigh Railway Workshops Machinery (Movable Heritage)	SHR Item no. 01141	State	A collection of mechanical and industrial equipment related to the historical operation of the Eveleigh Railway Workshops. Now housed in the former locomotive workshops within the Australian Technology Park site.	No items of movable heritage are present in the subject sites.
Eveleigh – Large Erecting Shop	RailCorp s170 register, SHI# 4805751	State	Late 19th century locomotive maintenance facility	Located 65 metres to the east of Subject Site 2.
Redfern Railway Station Group	SHR Item no. 01234	State	Late 19th century railway station.	Located to 200 metres north-east of Subject Site 3.
Eveleigh Chief Mechanical Engineers Office	SHR Item no. 01139	State	Late 19th century office building.	Located to the north of the rail corridor on Wilson Street, about 170 metres north of Subject Site 3.
Heritage rail carriage (FRN 2186 Second Class Sitting / Buffet Car)	RailCorp s170 Local register SHI# 4807101	Local	Heritage rail carriage constructed in 1939. Presently residing in the northern portion of the Australian Technology Park. Located within Subject Site 3.	Innovation Plaza

3.2 Archaeological heritage

This section assesses the potential and significance of possible archaeological remains. This archaeological assessment focusses on archaeological resources within Subject Sites 1, 2 and 3. As there would be no ground disturbing activities proposed within the Temporary Compound or the Temporary Construction Office and Stores areas, these areas have not been assessed for archaeological heritage.

3.2.1 Previous studies

A number of built heritage and precinct assessments have been conducted for the Eveleigh Railway Workshops. There have been fewer archaeological assessments conducted in the area, the results of which are provided below.

Eveleigh Railway Workshops Locomotive Workshops, Conservation Management Plan 1995

The 1995 Eveleigh Railway Workshops Locomotive Workshops Conservation Management Plan authored by the Heritage Group included an assessment of potential archaeological relics which may be located underneath the existing locomotive workshops located immediately south of Subject Site 3 within the Australian Technology Park portion of the Precinct.

Archaeological potential was identified below the extant workshops, based on historical plans which revealed significant buried or concealed engineering structures below the workshop floors (Heritage Group. NSW Public Works, 1995) . Below-ground engineering structures included workshop flues, structural supports, stormwater and electrical services.

Macdonaldtown Triangle European Heritage Issues Report 2002

Cultural Resources Management undertook a study in 2002 of the 'Macdonaldtown Triangle', which is located in the rail corridor directly to the north of the Millennium Sheds at the Eveleigh Railway Workshops and east of Macdonaldtown Station.

Geotechnical studies in this location revealed the presence of fill materials in the rail corridor, varying between 0.2 metres and 2.5 metres in depth. This fill material consisted of sand, gravel, ballast and fly ash. Archaeological evidence relating to former rail structures and brick footings of former carriage sheds were provisionally identified in this area. The area was ascertained to likely contain historical relics of local significance, relating to early infrastructural development of the area.

Australian Technology Park Conservation Management Plan 2013

Godden Mackay and Logan prepared the currently endorsed Conservation Management Plan for the Australian Technology Park in 2013. A section of the Australian Technology Park is located in the north-eastern portion of the Precinct. A preliminary archaeological assessment was prepared for the Conservation Management Plan.

The assessment identified the potential for remains of a number of former structures to exist. These included stables from the Chisholm Estate (1820s – 1888), residential development on the outer margins of the Australian Technology Park (prior to resumption of the land for the rail yards in 1917), and the footings and remains associated with former rail yard buildings, rolling stock and infrastructure. Ground disturbance in the area was noted, and former rail infrastructure and buildings were assessed as having a moderate potential for remaining in the area. Significant remains associated with earlier phases of the Eveleigh Railway Workshops was assessed as having potential for State significance.

Subject Site 3 (located partly within the Australian Technology Park) was not assessed as having archaeological significance in the Australian Technology Park Conservation Management Plan as it is located away from the footprints of former structures.

3.2.2 Land use summary

Phase 1: Chisholm Estate, 1820s – 1880

The first European settlement in the Precinct was the development associated with the 60 acre Chisholm Estate, which was granted to James Chisholm in 1835. Only parts of the estate were farmed, with a manorial house constructed in the 1830s in the northern part of the estate called Calder House. In 1855, the first Sydney railway line was constructed through the centre of the estate, and the land was resumed in 1880 for the construction of the Eveleigh Railway Workshops.

Maps from the 1870s show that structures relating to the Chisholm Estate were not present within the subject sites. Lines denoting possible fence lines are apparent to the north of subject sites.

Phase 2: Original Eveleigh Railway Workshops, 1880 – 1960

The Chisholm Estate was resumed by the government in 1880 and initial construction works commenced in 1882. The first large structures constructed on the southern side of the railway line included the Locomotive Workshops and the former Engine Running Sheds, which were completed by 1892 (Figure 21). A pedestrian footbridge was constructed in 1913 between the northern and southern portions of the Eveleigh workshops, via an access point to Macdonaldtown Station. Plans from the 1930s show that this footbridge connected to a number of smaller ancillary buildings, which have been identified as general stores and office buildings.

At Subject Site 3, no substantial structures were constructed. Photographs from the early 1900s show the natural landform sloping up to the Work Manager's Office (located in the Australian Technology Park today) and minor gardens created in that area.

The engine running sheds were originally designed and constructed as three large semi-circular roofed bays for engine repair and maintenance. In 1925, the northern bay of the running shed was demolished to make room for more rail tracks and sidings (Figure 13 and Figure 23).

Phase 3: Modern Eveleigh Railway Workshops, 1960 – Present

In 1962, the remaining two bays of the original running sheds were demolished to make room for the new Air Conditioned Car Depot, which operates today as the Eveleigh Maintenance Centre (the OSCAR and Millennium Sheds). By 1965, the general store and office buildings located to the south of the rail corridor had been removed, and a lifting shed (now the Welding Qualifications Centre building) had been established in this area.

In the 1990s, the Australian Technology Park was established as a new commercial and industrial precinct in the south-eastern portion of the Precinct. The Australian Technology Park was separated from the remainder of the Eveleigh Railway Workshops at this time. Subject Site 3 in the Australian Technology Park was paved and incorporated as an open plaza and as a rubbish storage area.

Figure 21: 1892 Plan of Eveleigh Railway Workshops (subject sites outlined in red)

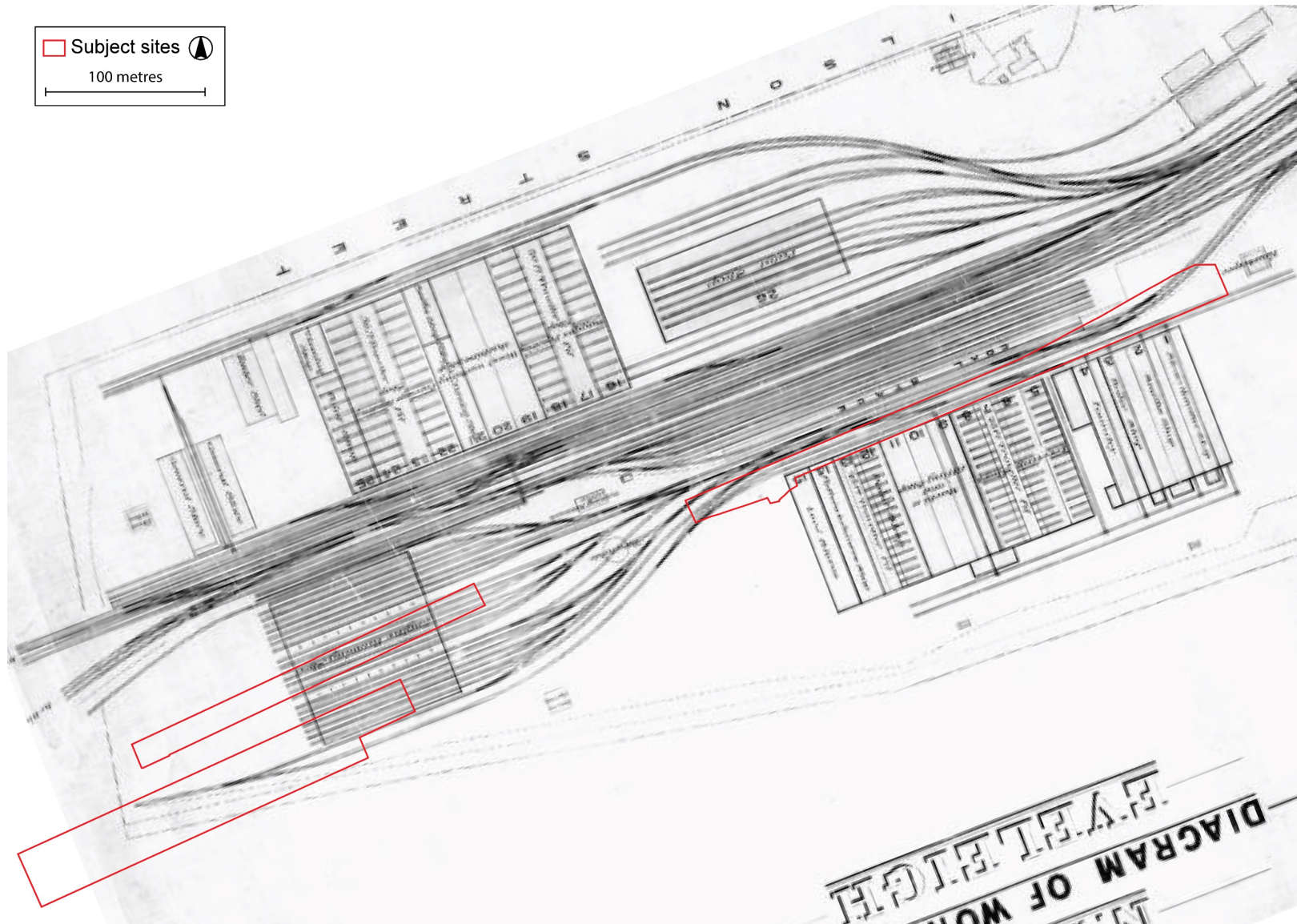


Figure 22: 1949 aerial image of Eveleigh Railway Workshops (subject sites outlined in red)

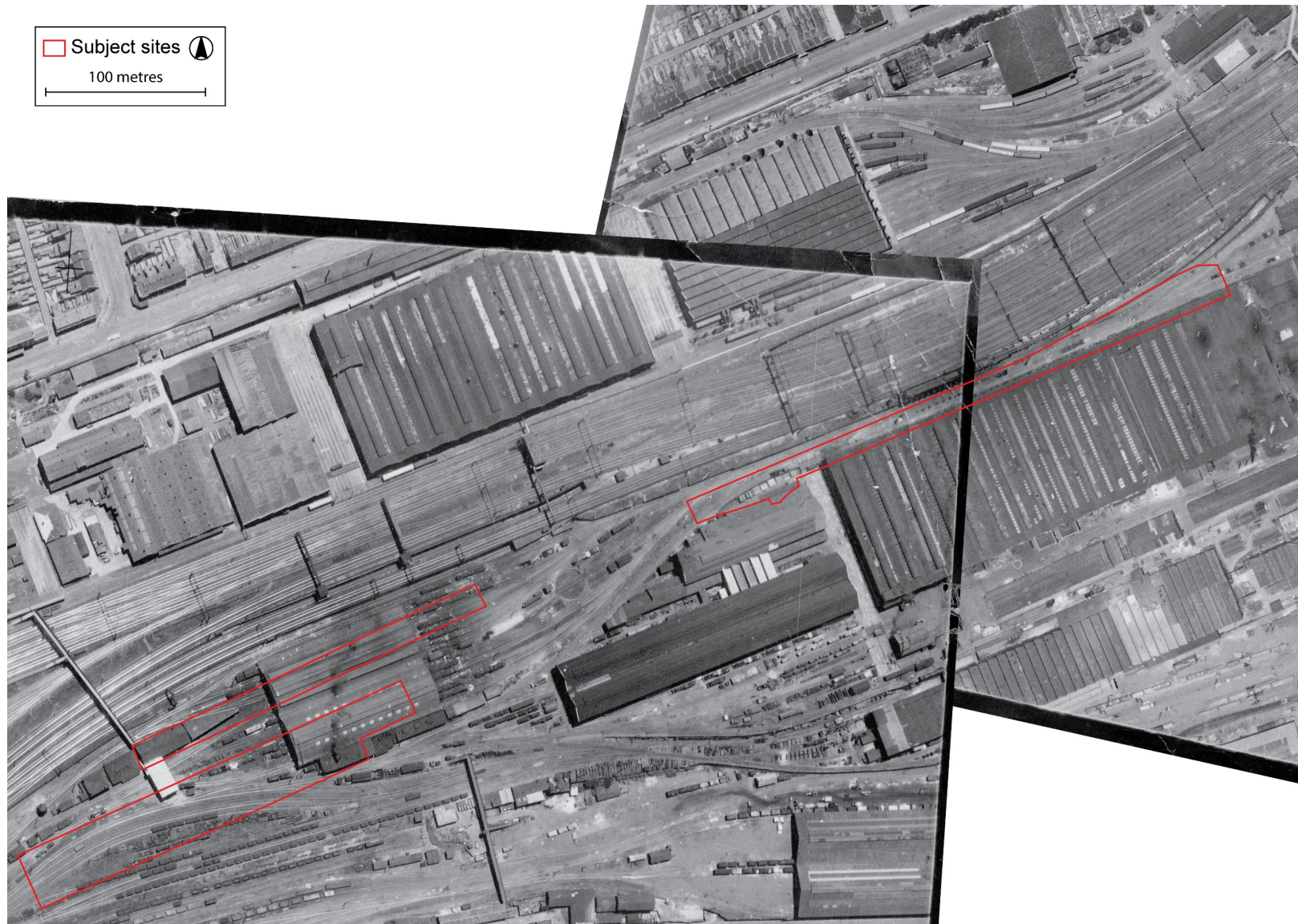
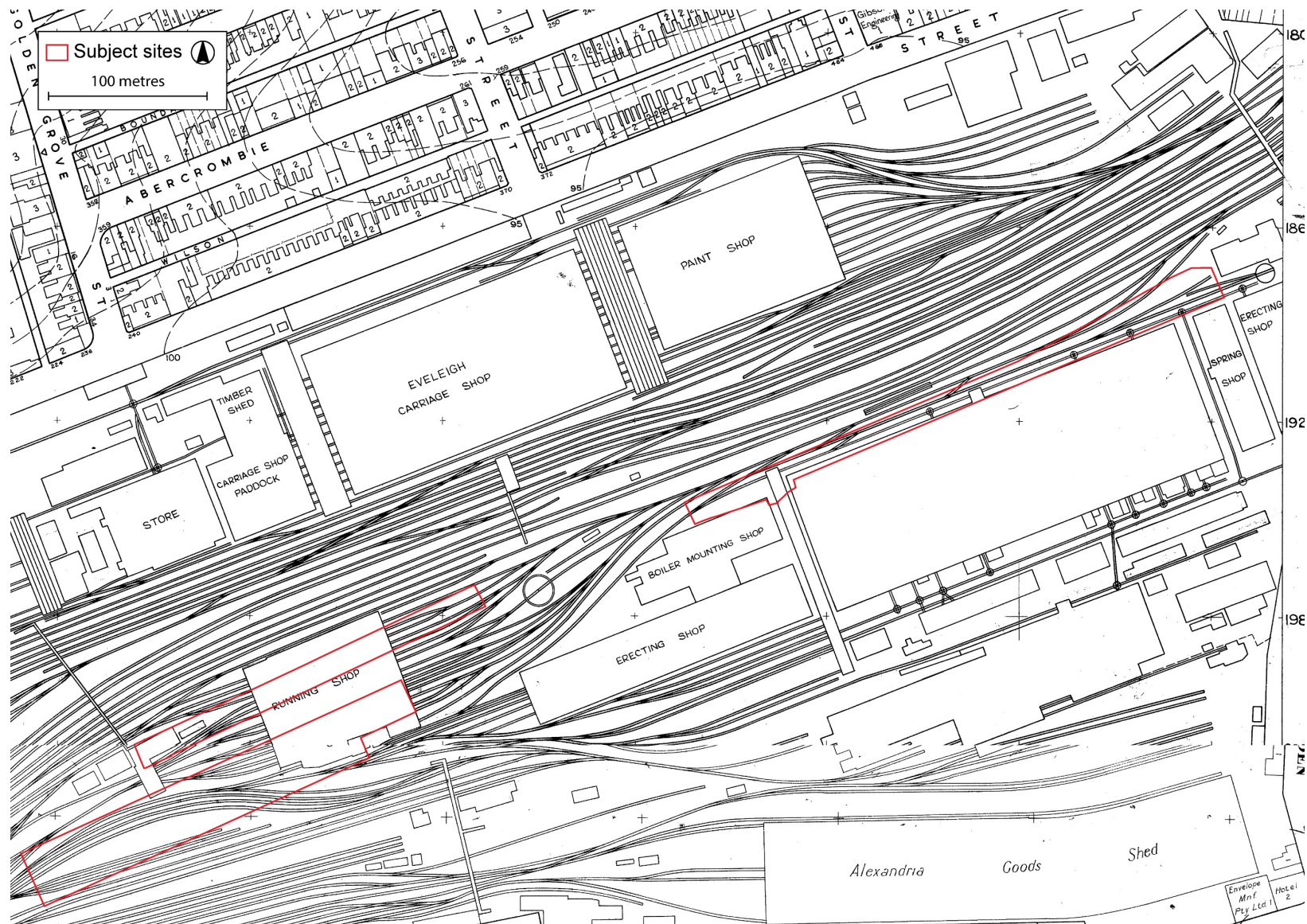


Figure 23: 1950 Civic plan of Sydney, showing Eveleigh Railway Workshops (subject sites outlined in red)



3.2.3 Previous disturbance

The Precinct has undergone numerous phases of development, construction, demolition and landscape modification since the Eveleigh Railway Workshops were first established in 1882. Early site works would have levelled the original landform in the area, with significant excavation across the Precinct. This early landscaping is likely to have removed archaeological resources relating to the Chisholm Estate in the mid-1800s.

Historical aerial images and plans show that railway tracks and sidings have gone through phases of construction, removal and re-orientation. Works to construct new railway track typically involve heavy ground disturbance in that local area, with the importation of significant quantities of fill (sand, gravel, ballast and ash). With the electrification of the railway network in the twentieth century, overhead wiring was increasingly constructed across the railway line. Overhead wire stanchion excavation would have resulted in ground disturbing impacts.

Numerous utility service corridors were identified in the Precinct. Services range from electrical conduits, telecommunications wiring, water and sewerage services, and a large network of stormwater drainage services throughout the site. The installation of these services would have involved ground disturbing works that would have impacted archaeological remains across the subject sites to varying degrees.

3.2.4 Potential archaeological remains

The following section discusses phases relating to archaeological potential.

Phase 1: Chisholm Estate, 1820s – 1880

Archaeological remains relating to the Chisholm Estate would consist of evidence related to farming. This could include timber posts and post holes, tree boles and other informal evidence of agricultural and grazing use. However, ground disturbance in the Precinct has been significant since the development of the Eveleigh Railway Workshops, and the archaeological potential of recovering these remains would be nil.

Phase 2: Original Eveleigh Railway Workshops, 1880 – 1960

Several late nineteenth and early twentieth century railway buildings were located in the subject sites. While ground disturbance across the site is moderate to high, there is potential for archaeological resources related to these former buildings to be present and intact across the site. These are addressed in the sections below.

Locomotive Stores – Subject Site 1

Five smaller store and office buildings were located in the area of Subject Site 1 until the early 1960s. These buildings consisted of general stores and administrative offices. Two store buildings in particular would be located in the immediate location of proposed ground disturbing works.

The two buildings consisted of a single-storey timber store and a two-storey sawtooth roofed brick store, illustrated in Figure 24. The timber store was constructed prior to the 1920s while the brick store was constructed in the early 1930s. These buildings were used to house and distribute engineering and mechanical supplies to rail workers across the entire Precinct, up until their demolition in the 1960s.

Archaeological resources relating to the construction, use and maintenance of these buildings would consist of:

- brick and concrete footings
- timber postholes
- brick, stone and terra-cotta services
- discarded mechanical equipment
- former yard surfaces
- isolated artefact deposits.

This area has seen significant ground disturbance over part, but not all, of the area. The majority of this area is asphalt and hardstand concrete, with utility service corridors located parallel and adjacent to these surfaces. Former and current rail tracks are located in the Welding Qualifications Centre and to the east. The rail tracks are situated at an elevation below ground level.

The western portion of this part of the Precinct was a small garden up until the early 1990s. It is likely that deeper subsurface remains relating to these buildings would remain.

The potential for recovering archaeological remains relating to these buildings is considered to be **low to moderate**.

Figure 24: 1930s photograph of the timber (left) and brick (right) locomotive stores buildings, north-east aspect (Source: Railway Resource Centre, Redfern)



Former Engine Running Sheds – Subject Site 2

The south-eastern corner of the southern bay of the former running sheds were located within the Subject Site 2 area. This area is presently occupied by rail sidings. While construction of the sidings

would have resulted in sub-surface impacts to any remains associated with the former running sheds, the construction of the running sheds would have also involved sub-floor structures, particularly train maintenance pits of unknown depth and extent (evident in Figure 25).

Archaeological resources relating to the construction, use and maintenance of these buildings would consist of:

- brick and concrete footings
- former workshop and yard surfaces
- former train maintenance pits
- brick, stone and terra-cotta services
- discarded mechanical equipment and industrial debris
- isolated rubbish deposits.

Conduits installed to connect to overhead wire in the area would have caused significant impacts, however former train maintenance pits may have been backfilled and contain artefacts. The potential to recover intact and legible archaeological remains related to the former engine running shed is assessed as **low to moderate**.

Figure 25: Photograph of the interior of the engine running sheds with train maintenance pits visible in foreground, 1930s, west aspect. (Source: Railway Resource Centre, Redfern)



3.2.5 Assessment of archaeological significance

The statement of significance in Table 4 has been partially adapted from the Eveleigh Railway Workshops State Heritage Inventory entry, amended with reference to the potential archaeological resources on the site.

Table 4: Assessment of significance for archaeological resources relating to the late-nineteenth and early twentieth century buildings of the Eveleigh Railway Workshops in the Precinct

Criterion	Explanation
A – Historical significance	<p>The workshops were an important part of the NSW rail network which was instrumental in the development of the state during the 19th and 20th century.</p> <p>Intact archaeological resources from the locomotive stores and former running sheds would be considered of State significance under this criterion.</p>
B – Associative significance	<p>It is unlikely that archaeological resources would directly reflect an association with Whitton, Cowdery or any other significant figure.</p> <p>Archaeological resources may be associated with the workers at the site.</p> <p>Archaeological resources from the locomotive stores and former running sheds would be considered of local significance under this criterion.</p>
C – Aesthetic or technical significance	<p>Recognisable archaeological remains relating to the former running sheds, locomotive stores and offices could demonstrate the size and form of the now-demolished buildings and demonstrate technical achievement.</p> <p>Intact archaeological resources from the locomotive stores and former running sheds would be considered of State significance under this criterion.</p>
D – Social significance	<p>Any remains associated with former workers may have social significance. The Workshops were one of the largest employers in Sydney at the turn of the century, has a strong association with trade unions and had connection to the local Aboriginal community. The potential for archaeological remains to provide legible connections to these communities is slight.</p> <p>Intact archaeological resources from the locomotive stores and former running sheds would be considered of local significance under this criterion.</p>
E – Research potential	<p>The Eveleigh Railway Workshops have considerable research potential for understanding the operation of railway workshops. This potential is enhanced by the extent of archival material available and because the relatively recent closure means that there are many former workshop workers who are still alive and understand the operation of the Precinct.</p> <p>Archaeological remains have the potential to reveal further information about the operation of the Yards.</p> <p>In the context of the Eveleigh Yards as a whole, archaeological resources from the locomotive stores and former running sheds would be considered of local significance under this criterion.</p>
F – Rarity	<p>Steam era infrastructure is rare in NSW, although in the context of the site, remains of the running shed and workshop are not rare. Other extant examples of contemporary structures are located outside the Precinct.</p> <p>Archaeological remains relating to steam-era locomotive workshops would be considered of local significance.</p>
G – Representativeness	<p>Archaeological resources would not be considered representative of any particular architectural type. Remains would not meet the threshold for significance under this criterion.</p>

3.2.6 Statement of significance

Archaeological remains relating to the former engine running sheds and locomotive stores are related to the century-long use of the Eveleigh Railway Workshops as one of the primary maintenance

centres for the steam locomotive network in New South Wales. Archaeological remains of these rail working environments, including stores, sheds and pieces of mechanical equipment, could provide information or demonstrative archaeological relics which could explain technological and labour organisation changes in late nineteenth and early twentieth century New South Wales. Intact archaeological remains associated with the locomotive stores and engine running sheds may reach the threshold for State significance, depending on the intactness of remains.

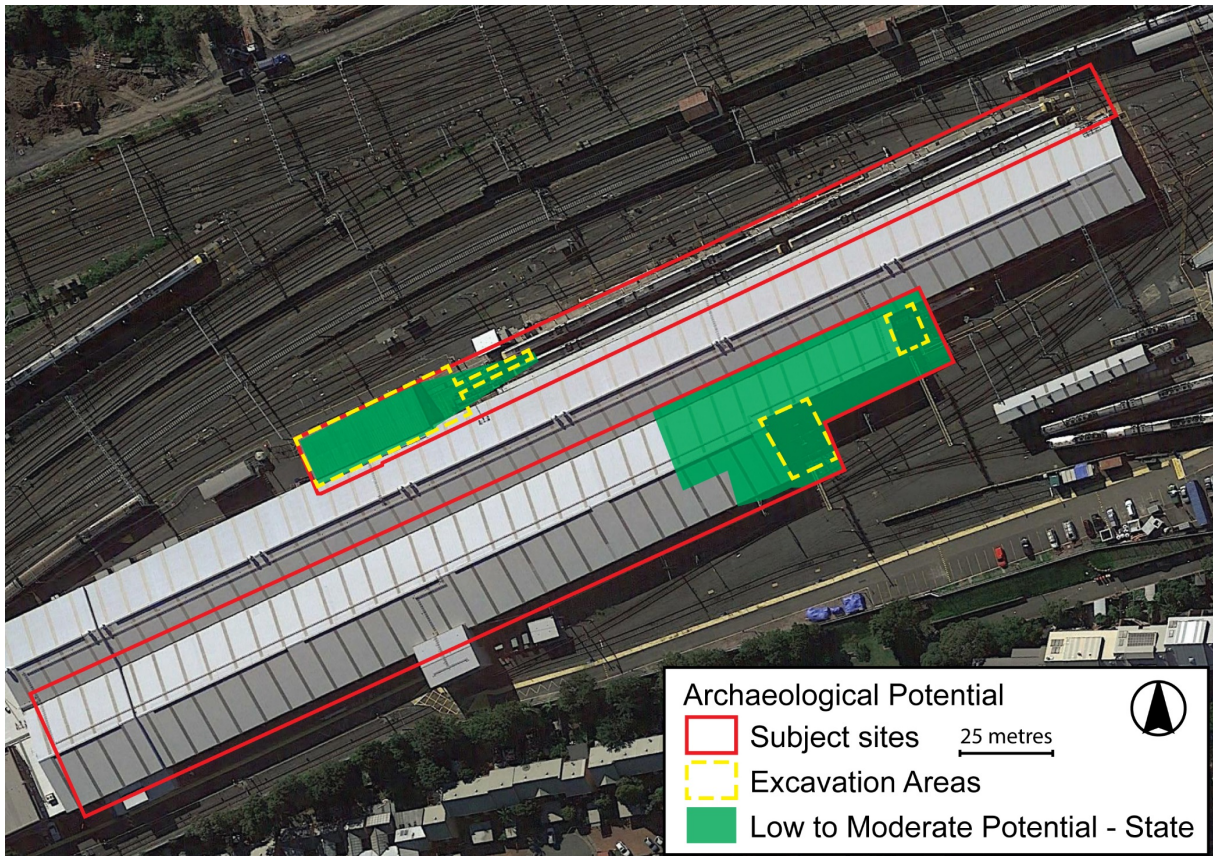
3.2.7 Summary of archaeological potential

Based on the available historical information, land use data and evidence of prior subsurface impacts, a summary of the archaeological potential is provided Table 5. The location of these areas of archaeological potential is illustrated in Figure 26.

Table 5: Summary of archaeological potential in the subject sites

Phase	Subject Site	Potential archaeological remains	Potential
Phase 1 (1820 – 1880)	All	Archaeological remains relating to the former Chisholm Estate, including timber posts and postholes, tree boles and other evidence of agricultural land use.	Nil
	Subject Site 2	Archaeological remains related to the former engine running shed, including: brick and concrete footings; former workshop surfaces; former train maintenance pits; former brick, stone and terra cotta services; discarded mechanical equipment and industrial debris and isolated rubbish deposits.	Low - moderate potential for archaeological remains of State significance
Phase 2 (1880 – 1960)	Subject Site 1	Archaeological remains relating to the former locomotive stores would include: brick and concrete footings; timber postholes; former brick, stone and terra cotta services; former yard surfaces; discarded mechanical equipment and artefacts; isolated rubbish deposits.	
		Subject Site 3	

Figure 26: Map of archaeological potential in Subject Sites 1 and 2



4.0 IMPACT ASSESSMENT

4.1 Proposed works

The proposed works are summarised for each subject site in Table 6.

Design documents relevant for this assessment are listed below:

- Subject Site 1 – Engineering Sidings, Civil and Excavation (SK-H201, Rev B, 17 Feb 2017)
- Subject Site 1 – Engineering Sidings, Overhead Wiring (SK-H202, Rev B, 17 Feb 2017)
- Subject Site 2 – Millennium Maintenance Centre, Civil and Excavation (SK-H301, Rev A, 20 Feb 2017)
- Eveleigh Yard No. 6 and 7 Storage Road, New Intercity Fleet Enabling Works Railways Overhead Wiring (NIF-101002-GHD-EL-03053)
- Subject Site 3 – Extension of Eastern Siding, Civil and Excavation (SK-H101 Rev B, 17 Feb 2017)
- Subject Site 3 – Extension of Eastern Siding, Overhead Wiring (SK-H102 Rev B, 20 Feb 2017)

Table 6: Description of works

Project area	Description of Works
Subject Site 1 – Engineering Sidings	<p>Works within Subject Site 1 would involve:</p> <ul style="list-style-type: none"> → relocation of the equipment within the Welding Qualifications Centre to another location within the Precinct → demolition of the Welding Qualifications Centre to accommodate the extension of Engineering Roads 1 and 2 → extension of Engineering Roads 1 and 2 by approximately 49 metres → extension of the OHW to match the track extension → install crew walkways and pathways for the extended length of the Engineering Roads → extension of lighting to cover the new walkways and pathways → extension of the suction and non-potable water supply and the installation of additional decant point associated with the existing decant facility → retain existing fixed buffer stop (a device to prevent railway vehicles from going past the end of a physical section of track) and provide new stop lamp, to the end of the new track on Engineering Road No 1 → provision of a new fixed buffer stop and stop light at the end of the Engineering Siding No. 2 → installation of a new fixed train stop 2.5 metres from buffer stop including location modifications → ancillary works such as bonding modifications, signals, the installation of signage and fixed train stops in accordance with relevant Australian Standards (AS), as required → Should ASA not grant a concession to splice onto the end of the existing overhead wire a new section of OHW would be installed which starts from the nearest splice point to the end of the track extension

Project area	Description of Works
Subject Site 2 – Millennium Maintenance Centre	<p>Works within Subject Site 2 would involve:</p> <ul style="list-style-type: none"> → extension of the OHW over Maintenance Roads 6 and 7 to accommodate access to the shed for the longer New Intercity Fleet trains (i.e. installed to the full length of the roads) → relocation of safety isolation equipment, supporting OHW structures and signals on Maintenance Roads 7, 8 and 9 → new safety isolation equipment to enforce safe interaction between overhead wire isolation on Maintenance Roads 6 and 7, high level platform access, crane operation and retractable overhead wiring operation → extension of walkways and lighting, as appropriate → ancillary works such as bonding modifications, signals, the installation of berth boards, buffer stop lights and fixed train stops in accordance with relevant AS, as required.
Subject Site 3 – Eastern Siding	<p>Works within Subject Site 3 would involve:</p> <ul style="list-style-type: none"> → extension of the track by approximately 26 metres (to provide a total length of 215 metres clear of the entrance road interlocking) → extension of the OHW to match the track extension → extension of walkways and lighting for the extended track length, as appropriate → extension of the security fencing around the extended section of track → potential alterations to the existing stormwater drainage system at the eastern extent of the new security fence line → relocation of the existing FRN 2186 Second Class Sitting / Buffet Car (referred to as the “heritage train”) to facilitate access to the construction site and for the storage of materials and equipment. The final position of the relocated heritage train would be confirmed during detailed design and in consultation with relevant stakeholders → installation of a fixed buffer stop and signage on the No 2 Shunting Neck should it be utilised for stabling → ancillary works including the relocation of the buffer stop and buffer stop lights, signals, bonding modifications the installation of berth boards and fixed train stops in accordance with relevant AS, as required. → Should ASA not grant a concession to splice onto the end of the existing overhead wire a new section of OHW would be installed which starts from the nearest splice point to the end of the track extension → Electrical supply. This will be sourced from the endeavour workshop and will use the existing cable tray
Temporary Construction Offices and Stores	<p>The existing site office within the Eveleigh Maintenance Centre Office and Amenities building will be used as a Temporary Construction Offices and Stores. There will be no change to the fabric of the existing office building during construction. The offices will be used for construction planning, project management and administration and the storage of office equipment</p>
Temporary Construction Compound	<p>The Temporary Construction Compound is a delineated laydown area within the Eveleigh Rail Precinct to store construction equipment, machinery and construction vehicles. There will be no excavation or ground disturbance associated with the compound and the area will be returned to its existing condition when the construction of the project is complete.</p>

4.2 Methodology for impact assessment

Due to the size and scale of the Eveleigh Railway Workshops, and their ongoing use as a rail maintenance facility, heritage components of the Eveleigh Railway Workshops have been assessed as elements of the whole item individually. The scale of these individual impacts has then been

compared against the heritage significance of each element in relation to the whole heritage item. The impacts to these elements, as well as cumulative and visual impacts, are described in Section 4.3.

Heritage items, which are independently listed on heritage registers and not a component of the Eveleigh Railway Workshops, have had separate summary assessments. Impacts to these items are shown in Section 4.6.

4.3 Impacts to Eveleigh Railway Workshops (SHR# 01140)

The project is located to the south of the operational main lines of the railway corridor. The older buildings in this area reflect a Victorian-era pride in technological and engineering achievements. Rail transport was a central landmark of Victorian-era technology, and rail infrastructure was frequently far more grandly conceived and constructed than is currently the case (Ransom, 1989).

The Precinct is on the southern slope of a gentle localised rise. Its immediate surroundings are the wider Australian Technology Park to the east, and residential properties to the south. The proposed development would be shielded from public view by existing rail facility structures, the elevated railway corridor, and tree plantings.

4.3.1 Elements to be impacted

Table 7 to Table 13 list elements of the State heritage listed Eveleigh Railway Workshops which would be impacted as a result of the proposed works. Cumulative impacts are also discussed in this section. Descriptions and statements of significance for these items have been adapted from Futurepast 2014.

Table 7: Assessment of impacts to Millennium and OSCAR Maintenance Sheds

Air Conditioned Cars Depot / Millennium Shed / OSCAR Maintenance Shed - Item 20	
Significance of the component to the Eveleigh Railway Workshops (SHR #01140)	Moderate
Description	Two storey steel-framed metal shed with sub-floor maintenance pits. Hipped steel and fiberglass roof. Photographs for this item are provided in Figure 27 and Figure 28.
Movable Items	None identified
Statement of significance	The building was originally constructed in the 1960s for the servicing of air conditioned cars. It has since been remodelled extensively, last in 2013, and currently serves for maintenance of Millennium & OSCAR trains. It is representative of a large functional mid-twentieth century industrial building.
Impact type	Direct physical impact Roads number 6 and 7 presently possess overhead wire only up until the centre of the road inside the shed. Works for the NIF project would involve the removal of some of the existing gantry way and ancillary infrastructure, in order to run new wiring along the roof of the shed. A new buffer would be installed at the western termination of the roads.
Impact on element	Negligible direct impact The modification of the interior of a working train maintenance facility would not substantially alter the interior setting or items of heritage physical fabric of the shed. Internal elements of

Air Conditioned Cars Depot / Millennium Shed / OSCAR Maintenance Shed - Item 20

the Millennium Shed are modern rail maintenance facilities and the project would cause alterations which would be indistinguishable from present fabric in this context.

Negligible direct impact

Impact to overall SHR item

The Millennium Shed is an element of moderate significance to the Eveleigh Railway Workshops. A negligible impact to this element would result in a negligible impact to the larger item.

Figure 27: Millennium and OSCAR maintenance centre from south east



Figure 28: Interior of Millennium maintenance centre from east



Table 8: Assessment of impacts to Welding Qualifications Centre

Welding Qualifications Centre building - Item 24

Significance of the Component to the Eveleigh Railway Workshops (SHR #01140) **Little**

Description	<p>Item 24 was constructed in 1965/66 as part of the Air-Conditioned Car Depot. It originally functioned as the lifting shed for servicing these cars. Since the 1990s it has been used as a welding training facility. The building appears to have undergone several phases of construction and alteration, and in parts may contain elements from buildings dating earlier than the 1960s. It is currently a single-storey structure of brick veneer infill between steel framing, with a gable roof of steel, on a low angle. Brick and wooden workshop doors may have been re-used from other structures on the site when the building was constructed.</p> <p>The southern side of the building abuts the OSCAR maintenance shed, the north side is dominated by steel-shuttered windows, and the east and west sides possess roller doors between which a single rail-track runs. The building is simple in design and functional in appearance.</p> <p>Equipment in the workshop is related to the use of the building for training in welding and metalworking, and dates from the 1990s. No equipment in the building would be classified as movable heritage.</p> <p>Photographs for this item are provided in Figure 29 and Figure 30.</p>
Movable Items	<p>The building has been in ongoing use for training in train maintenance, welding and metalwork. It contains a number of items of machinery, none of which appear to date earlier than the 1990s.</p>
Statement of significance	<p>Item 24 is a simple functional building annexed to the Eveleigh Maintenance Centre. It reflects changes in technology that once saw Air-Conditioned Rail Cars as a relative rarity, which required specialised servicing facilities. Such changes in technology are commonly reflected in the built nature of railway yards. Such simple, functional buildings are also common in the railway yard, and Item 24 would not appear to possess any properties that distinguish it from its surrounds.</p>
Impact type	<p>Direct physical impact</p> <p>The Welding Qualifications Centre would be entirely demolished. All equipment would be removed from the building and relocated to new premises (yet to be determined). The site of the former building would be the location of extended rail track (Engineering Roads 1 and 2).</p>
Impact on element	<p>Major direct impact</p> <p>Demolition of the entire Welding Qualifications Centre, would be undertaken. The total demolition of the building cannot be mitigated, and would therefore cause a major impact to the element.</p> <p>It is understood the machinery within the building is modern (post 1990s), so removal of those items would not be considered an impact to significant movable heritage items. These items would be relocated elsewhere on site and not damaged by the project. A schedule of movable heritage items within the welders shed, such as the large timber roller door, will be prepared prior to commencement of works.</p>

Welding Qualifications Centre building - Item 24

Minor direct impact

The Welding Qualifications Centre is an element of little heritage significance. While the demolition of the building would result in a major impact to the heritage significance of the element, the removal of the structure would not result in a reduction in significant heritage view lines because of its location away from elements of high and exceptional significance in the Precinct. The demolition would therefore not result in indirect (visual) impacts to the heritage significance of the Precinct.

Impact to overall SHR item

The demolition of the Welding Qualifications Centre would result in only a minor removal of fabric (of little significance) when considered in comparison to the scale of the overall Eveleigh Railway Workshops. Furthermore, the Welding Qualifications Centre was constructed relatively late in the history of the site (1960s) when compared with those elements of the Precinct which are of high and exceptional significance (late 1800s).

While the building would be demolished, the ongoing occupational significance of the rail associated activities that take place in the structure would be relocated elsewhere in the Precinct. This would preserve the continuity of rail training and engineering at the site of the Eveleigh Railway Workshops.

Figure 29: Welding Qualifications Centre, viewed from the east



Figure 30: Welding Qualifications Centre, interior viewed from the east.



Table 9: Assessment of impacts to Decanting Facility

Open Shelter – Gas storage: Item 25

Significance of the Component to the Eveleigh Railway Workshops (SHR #01140) **Little**

Description This is a concrete and steel modernist functional structure that was built in 2013. A photograph for this item are provided in Figure 31.

Movable Items None

Statement of significance This structure is a modern functionalist shelter with visible design content. It reflects the ongoing changing requirements of train maintenance in the Precinct.

Impact type **Negligible indirect impact**
Demolition of the Welding Qualifications Centre to accommodate the extension of Engineering Roads 1 and 2 would result in a negligible change in the setting of the item.

Impact on element **Negligible visual impact**
The removal of the Welding Qualifications Centre would not significantly alter the context or setting of the item. The number of view lines between this element and other elements within the Precinct would be increased.

Impact to overall SHR item **Negligible indirect and cumulative impact**
The proposed works would expose the item to an increased number of view lines within the Precinct. The element is a modern structure of little heritage significance, located in a localised context of post-war (1960s and later) rail maintenance buildings. The removal of the nearby Welding Qualifications Centre would not noticeably improve or decrease the prominence of this element of little significance.

Figure 31: Decanting facility from west



Table 10: Assessment of impacts to memorial plaques

Memorial Plaques: Item 37

Significance of the Component to the Eveleigh Railway Workshops (SHR #01140) **Little**

Description Small brass plaques on low concrete plinths. One reads “G. A. Long 1920 – 1980 At Rest”, the other “K. M. Dean 1932-1978 At Rest”. These were originally located in a small garden to the north of the Eveleigh Maintenance Centre which has now been removed. The ashes of one or both of these individuals were reported to have been scattered in the garden that used to be located around these memorial plaques (Futurepast 2014 v2: Item 37). Photographs for this item are presented in Figure 32 and Figure 33.

Movable items None

Statement of significance These plaques indicate the close association between railway workers and their place of work. Neither the previous garden, nor the current location is open to members of the public, presumably including family of the memorialised individuals. Even if these individuals had memorials elsewhere, nevertheless, the choice of plaque location within a specifically work-related setting reinforces the strength of likely ties between these workers, their colleagues, and their trade. The considerable change to the context of their surrounds renders their impact significantly reduced.

Indirect (vibrational and inadvertent) impacts

Impact type The road to the north of the memorial plaques would be employed for construction equipment and machinery. There is the possibility of inadvertent physical harm to the plaques from machine and crews during construction phases of the project.

Memorial Plaques: Item 37

Negligible indirect impact

Impact on element The memorial plaques are solid metal and concrete and would not likely suffer noticeable damage from heavy plant in the vicinity. Accidental harm to these elements is possible during construction work although can be effectively mitigated.

Negligible indirect and cumulative impact

Impact to overall SHR item

The element is of little heritage significance to the Eveleigh Railway Workshops as a whole, and a negligible impact to this element would result in a negligible impact to the overall item.

Figure 32: Context of memorial plaques



Figure 33: Detail of memorial plaques



Table 11: Assessment of impacts to Works Manager’s Office

Works Managers Office (in Australian Technology Park site)	
Significance of the Component to the Eveleigh Railway Workshops (SHR #01140)	High This item is also listed on the RailCorp s.170 Register, #4745502
Description	Two storey rendered masonry building with corrugated metal roof, and curved corrugated verandah. The bell tower was originally at the western face of the building, however major expansion of the building saw its western wall extended 11 metres, effectively repositioning the bell tower in the centre of the building. The final external changes to the Works Manager’s Office took place in the 1940s, with construction of an extension perpendicular to its east wall (OEH NSW, 2016). Photographs for this item are provided in Figure 34 and Figure 35.
Movable items	Unknown. The building is not within the project footprint, and access to it was not sought during the site inspection.
Statement of significance	The Works Manager’s Office is one of the few remaining original components of the Eveleigh Railway Workshops. The building was part of the original construction of the Workshops in the 1880s and served as the location of the Works Manager and the pay office for the site. The building also contained the Timekeeper’s Office and a bell on the top of the building rang the start and end of shift and controlled the actions of workers at the site. The building demonstrates the separation of management from the main workforce and the manner in which control was exercised over the workforce. Although modified, the building retains enough key features to demonstrate its original function within the site.
Impact type	Indirect Visual Impact A new eastern railway siding has been proposed to be installed within 13 metres of the Works Managers Office. New security fencing would also be installed within close proximity to the building.
Impact on element	Moderate Visual Impact The present location of the Works Manager’s Office is surrounded by open pedestrian plazas, which provides excellent views of the building from the south and east. The extension of the railway siding into this plaza, with associated protective fencing and access restriction, would reduce publically available sightline distances to the structure. The existing open space to the west of the Work Managers Office is a continuation of the original gardened approach to the building, and provides prominence to the building from the point of view of the Locomotive Workshops. The isolation of the building from other nearby built elements is integral to the element’s heritage context as a managerial facility overseeing the industrial working of the Precinct. The reduction of this open space to the west of the building would noticeably diminish this particular heritage context of the item. The extension of the siding would impact setting and context of the Works Manager’s Office. While the setting and context has been modified since the construction of the building, the existing open space gives it visibility and prominence that would be obstructed by the extension of high security fencing and the intermittent presence of stabled trains.
Impact to overall SHR item	Minor indirect and cumulative impact The extension of the rail sidings into the intervening space between Innovation Plaza (and the public access to the locomotive and new locomotive workshops) and the Work Managers Office would restrict visibility of the element. The visual and spatial relationship between the Work Managers Office and the Locomotive Workshops, while partially obstructed by existing high fencing, would be noticeably impacted by the project. These visual obstructions to the building would result in a minor visual and a minor cumulative impact to the heritage item of the Eveleigh Railway Workshops as a whole.

Figure 34: Work Manager's Office looking east



Figure 35: Detail of Work Manager's Office west frontage



Table 12: Wooden buffer stop, eastern siding

Wooden buffer stop adjacent to	
Significance	<p>The wooden buffer stop is not listed as a significant element in the Futurepast CMP.</p> <p>This element is considered of little significance to the SHR listed Eveleigh Railway Workshops (SHR #01140) as a whole.</p>
Description	<p>The hardwood buffer is located at the eastern termination of a branch of the eastern siding. The buffer consists of a wooden cross-beams and wooden supporting pillars supported by a steel buttress. The wooden cross-beams and supporting pillars are painted white, whilst a steel plate painted black is attached across the centre of the cross-beams. The wooden buffer measures approximately 2.5 m wide, 0.6 m thick and 1.6 m high.</p> <p>An illuminated stop light on a supporting metal pole is situated above and behind the centre of the wooden cross-beams.</p> <p>Modifications were made to the area in front of the Works Manager Office in the 1990s. This included closing off the eastern portion of the eastern siding. It is likely that the wooden buffer was established at its current location at that time. As has been noted in other parts of the Sydney Trains network, such as Central Station, it was common for wooden buffers to be moved and reinstated following changes to a rail terminus. It is possible that this wooden buffer was located closer to the Works Managers Office and reinstated in its current location following modifications to the siding.</p> <p>A photograph of this element is provided in Figure 36</p>
Movable Items	<p>The wooden buffer is not a movable item.</p>
Statement of significance	<p>This wooden buffer is a functional item that reflects the ongoing changing requirements of train sidings in the Precinct.</p>
Impact type	<p>Direct physical impact</p> <p>The wooden buffer would be removed in order to extend the eastern siding to the front of the Works Manager Office.</p>
Impact on element	<p>Major direct impact</p> <p>The wooden buffer would be removed.</p> <p>There is an opportunity for the construction contractor to re-use the wooden buffer at the revised eastern termination of the eastern siding in front of the Works Manager Office. This would be dependent on the wooden buffer meeting current design regulations for railway infrastructure.</p>
Impact to overall SHR item	<p>Negligible indirect and cumulative impacts</p> <p>The location of buffer stops through the Precinct is dynamic. The wooden buffer has been in place in its current location since the late 20th century, whilst previously buffer stops would have been located closer to the Works Manager Office. The removal of the wooden buffer is part of the evolving use of the Precinct as a railway maintenance facility.</p>

Figure 36 Hardwood buffer stop from west, Work Managers Office in background



Table 13: Assessment of impacts to FRN 2186 Railway Car

Heritage rail carriage (FRN 2186 - Second-class Sitting / Buffet Car)

Significance	<p>This element is considered of moderate significance to the SHR listed Eveleigh Railway Workshops (SHR #01140) as a whole.</p> <p>This item is listed as an individual RailCorp s170 movable heritage item, (SHI# 4807101) of local significance.</p>
Description	<p>The Heritage rail carriage FRN 2186 was built by Waddingtons Ltd (later ComEng) as a second-class FN type tourist car and entered service in December 1939. The passenger area was divided into two saloons, each seating 39.</p> <p>During WWII, the car was incorporated along with eight other FN cars into the ambulance trains. In the immediate post-war era, the car was fitted with a buffet area and became FRN 2186 in May 1947. This time the car sat 47 in a 3+2 arrangement with an offset corridor. To provide refreshment facilities on the revamped 'Southern Highlands Express', FRN 2186 was modernised in May 1970. The buffet area was shortened by the elimination of the staff compartment and the former ladies' lavatory was stripped and provided with a single seat and the ladies washroom was altered to a storage area. The food preparation area was also modernised, and the 3+2 seating was replaced with 2+2 seating for 44. Gas heating was fitted at this time. In October 1981, the car was recoded FRN 1724.</p> <p>The car was condemned by the NSW State Rail Authority in August 1986 and subsequently leased to the lessee of the Mortuary Station as No. 1724 and continued in this use until about 1990 when it was retired from rail service.</p> <p>It is now leased to 3801 Ltd, a not-for-profit company which operates rail tours using historical engines and rolling stock. The Heritage rail carriage was renumbered and rebuilt by 3801 Ltd and recoded as FRN 2186. A photograph of this item is provided in Figure 37.</p>
Movable Items	The car is a movable item.

Heritage rail carriage (FRN 2186 - Second-class Sitting / Buffet Car)

Statement of significance	<p>The Heritage rail carriage FRN 2186 has heritage significance for its ability to illustrate the pre-WWII change in carriage construction materials and design, particularly the change to steel fabrication for carriage bodies. The item retains the post-war synthetic timber interior for sitting cars which was superseded over time in favour of simpler layouts and materials. It also demonstrates how these cars were converted to other uses, in this case, construction of a buffet/kitchen and adjacent waiting area. It is a good representative example of a series of vehicles built to this basic design in the late 1930s and modified in the 1960-70s, demonstrating how carriages were adapted in response to demand for improved accommodation. Buffet Car FRN 2186 is also considered to be a good representative example of the materials and methods of construction of railway carriages used in the early twentieth century.</p>
Impact type	<p>Indirect visual impact</p> <p>The carriage would be removed from its present location in order to make space for the extended rail siding and security fencing.</p>
Impact on element	<p>Negligible visual impact</p> <p>The carriage is located in a position of visual prominence in Innovation Plaza, however this is neither the original location nor heritage appropriate context for the element. The relocation of the carriage would result in negligible visual impacts to the heritage significance of the element.</p>
Impact to overall SHR item	<p>Negligible visual and cumulative impacts</p> <p>The rail carriage presently partially obscures view lines from the Locomotive Workshops towards the Works Managers Office. The relocation of this element would potentially improve the number of heritage significant view lines. However, security fencing would cause a largely similar degree of visual obstruction in its place.</p>

Figure 37 Heritage train FRN 2186 from north



4.4 Cumulative impacts to Eveleigh Railway Workshops

The Precinct consists of a large number of in-use railway support buildings and facilities, particularly in the vicinity of Subject Sites 1 and 2. In addition to the primary maintenance buildings (particularly the OSCAR and Millennium Sheds), a large number of pieces of infrastructure are replete throughout the area, including covered pedestrian walkways, train stop lights, existing buffer stops, overhead wiring structures and lighting. The latter in particular is extensive as the rail maintenance facilities at Eveleigh operate 24 hours per day.

The late nineteenth century brick structures at Eveleigh are the most prominent heritage components within the Precinct. However, the mass of the less individually prominent rail infrastructure components also strongly contribute to the heritage character of the Precinct by demonstrating evolving labour practices and rail technology.

The demolition of the Welding Qualifications Centre would remove an item of little heritage significance from within the precinct. The building would be replaced by an extension of the existing Engineering sidings to the north of the OSCAR maintenance centre. The extension of rail sidings within the precinct is consistent with the heritage characteristics of the Eveleigh Railway Workshops as an active, in-use rail maintenance facility. As such, the demolition of this building and replacement with rail sidings would result in negligible cumulative impacts to the Eveleigh Railway Workshops.

A number of ancillary works, involving the construction or replacement of new buffer stops, rail stop lights, pedestrian walkways, the re-routing of overhead wiring and the installation of new lighting are proposed. These are modifications extend the existing infrastructure within the Precinct and are relatively small in scale compared to the overall quantity of these elements.

These ancillary modifications would not be distinguishable from existing infrastructure within the Precinct, and are consistent with the heritage character of the site. No significant fabric would be impacted by these ancillary works. As such, these ancillary works would result in a negligible cumulative impact to the Eveleigh Railway Workshops.

Overall, the project would result in a negligible cumulative impact to the heritage significance of the Eveleigh Railway Workshops.

4.5 Archaeological impacts

4.5.1 Subject Site 1

The demolition of the Welding Qualifications Centre, and the extension of Engineering Roads 1 and 2 (with associated decanting, services and signalling structures) would cause ground disturbing impacts. These impacts would be up to four metres in depth across areas identified in the design plans within the demolition footprint, and may impact archaeological remains associated with the former locomotive stores.

Additional works would include the installation of new lighting structures which would involve ground excavation to install pole footings of unknown depth and limited horizontal extent. Proposed pedestrian footpaths would also be constructed, which would involve shallow excavation to lay suitable subgrade before installing the new paving surface.

The physical extent of ground disturbing works would exceed an area no larger than 35 metres by 14 metres in extent, predominantly located in and around the footprint of the current Welding Qualifications Centre. However, the exact methodology and final extent of ground disturbing works in this area has not yet been determined.

As detailed information on constructability for the demolition of the Welding Qualifications Centre and excavation works to build rail, decanting facilities, signalling structures and services is not yet known the entire footprint of the excavation area in Subject Site 1 has conservatively been presumed affected.

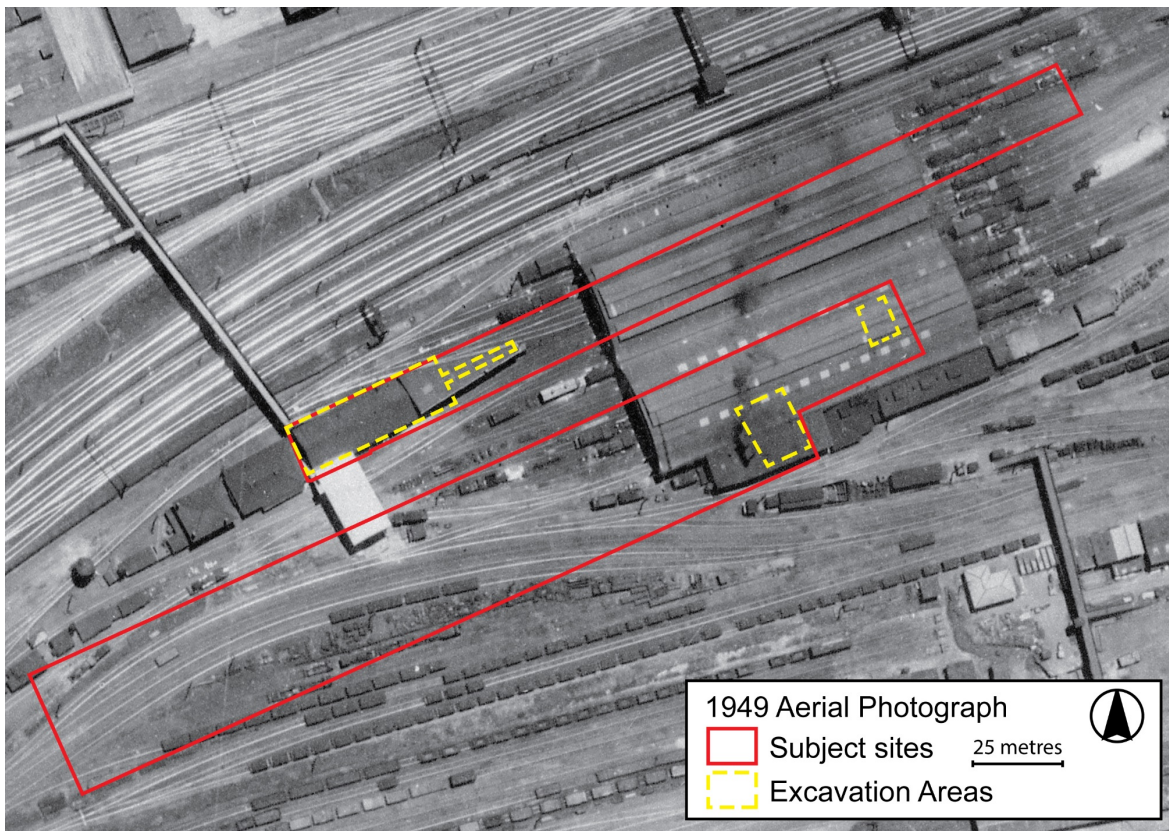
Areas that may require excavation are illustrated in Figure 38.

4.5.2 Subject Site 2

Excavation work to replace the overhead wire staunchions immediately to the east of the Millennium Shed would involve excavation to four metres depth and up to one metre by one metre wide. Other unspecified ground excavation would include the provision of new service trenching within the ground disturbance areas outlined in Figure 38. These excavations have of the potential to impact archaeological remains associated with the former engine running shed.

As assessed in Section 3.2.6, there would be a low-moderate potential for impact to State significant archaeological remains associated with the engine running shed and former locomotive stores.

Figure 38: Location of Subject Sites 1 and 2 over 1949 aerial image with indicative project excavation areas



4.6 Impacts to other heritage listed items

A summary of impacts to other heritage-listed items in or near the subject sites is provided in Table 14 below.

Table 14: Summary of other heritage listed items in or near the subject sites

Item	Register Listing	Significance	Impacts
Eveleigh Railway Workshops Machinery (Movable Heritage)	SHR Item no. 01141	State	<p>These items are stored in a building that would not be physically impacted by the proposed works. As these items are not visible from the outside, there would be no visual impact.</p> <p>Neutral physical and visual impacts</p>
Eveleigh – Large Erecting Shop	RailCorp s170 register, SHI# 4805751	State	<p>This item is located 60 metres to the south-east of Subject Site 2. It would not be physically impacted. Proposed works would not be visible from the point of view of the Large Erecting Shop. Proposed works in the vicinity would not cause significant vibration, and there is no potential for vibrational impacts during construction works.</p> <p>Neutral physical and visual impacts</p>
Redfern Railway Station Group	SHR Item no. 01234	State	<p>This item is located 200 metres to the north-east of the Precinct, and no physical impacts would be caused. The proposed works would not be visible from the Redfern Railway Station Group.</p> <p>Neutral physical and visual impacts</p>
Eveleigh Chief Mechanical Engineers Office	SHR Item no. 01139	State	<p>The item is located to 150 metres to the north of Subject Site 3 and would not be physically impacted. The proposed works would only be partially visible from the item, and those changes that would take place are consistent with the rail and industrial character of the Precinct.</p> <p>Neutral physical and visual impacts</p>
FRN 2186 Second Class Sitting / Buffet Car	RailCorp s170 register SHI# 4807101	Local	<p>This item is located within Subject Site 3. The item would need to be relocated as a result of the project. The removal of this item from its present location would cause a negligible impact to the heritage significance of the item.</p> <p>For a complete discussion of impacts to this item, please refer to the assessment of the carriage as an element of the Eveleigh Railway Workshops (SHR# 01140) in Table 13.</p> <p>Neutral physical and negligible visual impact</p>

4.7 Australian Technology Park Conservation Management Plan

Policies from the endorsed Australian Technology Park Conservation Management Plan (GML, 2013) that are relevant for the present assessment are discussed in this section.

Policy 1.4. If parts of ATP are sold or leased on long-term basis, adequate provisions should be included within the sale/lease contracts to ensure conservation and maintenance of heritage assets on the site in accordance with the endorsed CMP and the Management Plan for Movable Items (as revised). A copy of the endorsed CMP and the Management Plan for Movable Items (as revised) should be included as part of the sale/lease contract.

While a portion of the Australian Technology Park would be acquired by Transport for NSW in order to extend the eastern rail siding, no heritage assets are located within the area to be permanently acquired. The only heritage asset in Subject Site 3 is the FRN 2186 heritage rail carriage, which would be relocated elsewhere within the Australian Technology Park site prior to works commencing.

As such, no heritage assets would be purchased or controlled from the Australian Technology Park to Transport for NSW as a result of the project.

Policy 3.3. The visual and other relationships, such as physical connection or a use connection, between significant elements within the heritage curtilage should be conserved, where possible, including remaining physical connections such as rail tracks.

The visual connection and ease of access between the Work Managers Office and the Locomotive Workshops would be partly impeded by the project. While the extension of rail into the Australian Technology Park would be sympathetic with the heritage context of the Australian Technology Park, high security fencing of the railway corridor would occlude these sympathetic elements. Visual obstruction and physical accessibility would not be entirely reduced in this area, however, with a small unimpeded corridor remaining directly to the west of the New Locomotive Workshops.

Policy 3.6. Significant visual connections and specific views within the site, to and from ATP and to related places, should not be obscured (see Figure 7.2 for the specific views of High significance). Significant views include views into the site from the Great Western Railway. Where removal or obstruction of significant specific views is required for essential operation or development reasons, or if they are subject to existing approvals which would result in their loss or obstruction, other locations that provide the same type of view line could be identified as a replacement.

Retention of existing significant specific views or their replacement by alternative views is preferred. However, if significant specific views must be removed or obstructed, other mitigative measures should be undertaken, including retention of modified/slot views or implementing interpretive measures (such as representation of former views in building design, installation of public art which reflects former views and relationships, interpretive signs or other interpretive media).

The project would impact on the visual link between the northern end of Innovation Plaza (directly to the west of the Work Managers Office) north across the railway corridor towards the northern Eveleigh heritage buildings. This heritage view line is considered to be of high significance in the Australian Technology Park Conservation Management Plan. The proposed works would remove this portion of the open plaza from public access and obstruct views to the north with the introduction of high security fencing and intermittent train stabling in the siding.

However, this view is already entirely obstructed both by screening vegetation along the northern rail corridor security fence, as well as by fly-over embankments within the rail corridor. While the extension of the security fencing would not improve this sight line, it would not diminish it. Views from the Great Western Railway into the Australian Technology Park would not be noticeably obstructed as the elevation of passing trains would permit view lines above the height of the security fencing.

Opportunities for interpretive displays of the obstructed view line, in line with concepts outlined in Policy 3.6 above, could be explored during detailed design. In addition, interpretive displays of the heritage history and any archaeological relics uncovered during works could be provided in the publicly accessible portion of the southern Precinct in the Australian Technology Park.

Policy 9.2. Regular consultation with the local community and interested groups regarding changes, new works and/or new plans should become part of the future planning for the place.

Project information, including the Review of Environmental Factors and Statement of Heritage Impacts, would be provided for public display and community consultation.

4.7.1 Land ownership

A portion of Subject Site 3 is situated within the Australian Technology Park on land currently owned by Mirvac. This is the land situated in front of the Work Managers Office, and is identified as Lot 4007 DP 1194309. The portion of Subject Site 3 within Lot 4007 measures approximately 570 m². Transport for NSW will acquire this land prior to works commencing.

Under Section 170A of the Heritage Act, Transport for NSW is required to provide 14 days' notice to the Heritage Council regarding the change of ownership of approximately 275m² portion of Lot 4007 DP 1194309 from Mirvac.

4.8 Summary of heritage impacts

A summary of impacts to individual elements of the Eveleigh Railway Workshops is provided in Table 15.

Overall, the proposed works would result in a **minor** impact to the Eveleigh Railway Workshops (SHR #01140). The project has a low to moderate potential to impact State significant archaeological remains associated with construction and use of former buildings of the Eveleigh Railway Workshops.

Table 15: Summary of impacts to individual Eveleigh Railway Workshop elements

Element	Significance grading	Direct Impact to Element	Indirect Impact to Element	Archaeological impacts	Impact to Eveleigh Railway Workshop (SHR# 01140)
Works Managers Office	High	Neutral	Moderate	Neutral	Minor
Second Class Dining Carriage	Moderate	Neutral	Negligible	Neutral	Negligible
Millennium Shed	Little	Negligible	Negligible	Neutral	Negligible
Welding Qualifications Centre	Little	Major	N/A	Low-moderate potential for impacts to State significant archaeology	Minor
Open Gas Shelter (decanting facility)	Little	Neutral	Negligible	Neutral	Negligible
Wooden Buffer	Little	Major	None	Neutral	Negligible

A summary of the impacts to other heritage listed items is provided in Table 16.

Table 16: Summary of impacts to other heritage listed items

Item	Register Listing	Significance	Impacts
Eveleigh Railway Workshops Machinery (Movable Heritage)	SHR Item no. 01141	State	Neutral physical and visual impacts
Eveleigh – Large Erecting Shop	RailCorp s170 register, SHI# 4805751	State	Neutral physical and visual impacts
Redfern Railway Station Group	SHR Item no. 01234	State	Neutral physical and visual impacts
Eveleigh Chief Mechanical Engineers Office	SHR Item no. 01139	State	Neutral physical and visual impacts
FRN 2186 Second Class Sitting / Buffet Car	RailCorp s170 register SHI# 4807101	Local	Neutral physical and negligible visual impact

4.9 Justification and options

4.9.1 Justification for choice of site

Regional intercity train provide services for commuters travelling from regional locations to the city during morning peak hours and from the city to regional locations during evening peak hours. This necessitates extensive stabling facilities in Sydney during the day time with overnight stabling facilities in regional areas. With this in mind, suitably located day and night stabling and maintenance facilities are essential for the operation of the New Intercity Fleet.

Four facilities were identified being Mortdale, Auburn, Flemington and Eveleigh. A multi-criteria analysis was carried out that considered factors such as capability of the existing facility, extent of infrastructure upgrades required, cost, available siding capacity, access to the track test sites, proximity to the terminating station (i.e. Central Station), centralised location to allow maintenance and inspection checks to be easily undertaken, dead running distances, and proximity to other forms of public transport.

The evaluation of the existing facilities was reviewed at a workshop by representatives from various stakeholder groups within Transport for NSW. The outcomes of the workshop were that:

- the Mortdale facility was considered unsuitable for maintenance because of poor access to the Blue Mountains line and the Central Coast & Newcastle Line
- the Auburn facility rated poorly because of its layout, and that the existing workload is currently delivered under contract and so the facility is under the control of that contractor
- the Flemington facility was rejected as it has no spare capacity and there would be difficulties with gaining access during the day due to the density of trains operating on the main line (at 20 plus per hour)
- Eveleigh was selected as the preferred option as it rated strongly across many of the assessment criteria (e.g. extent of infrastructure upgrades required, proximity to the terminating station, centralised location to allow maintenance and inspection checks to be easily undertaken, dead-running distances, and proximity to other forms of public transport.)

4.9.2 Design options at Eveleigh

Following the identification of the Eveleigh Facility as the preferred site, two options that would achieve the necessary operational requirements for the New Intercity Fleet were considered. A 'do nothing' option was also considered but discounted as it would not meet operational requirements.

4.9.2.1 'Do nothing'

Under this option no changes would be made to the existing rail infrastructure within the Eveleigh Yard (i.e. track layout, siding lengths and associated infrastructure). This option was not supported as it:

- introduced operational inefficiencies and complexity associated with train shunting movements (i.e. the increased train lengths would block the movement of trains between some maintenance roads within the precinct)
- introduced unacceptable commissioning and maintenance safety issues due to the train extending outside the track which has electrical isolation of the overhead wires and lockout signals
- would not meet the stabling requirements, as only a SNIF train could be stabled on maintenance road 6 in the Millennium Shed as the overhead wires do not extend for the full length of the maintenance road
- would not allow for the decanting of all train carriages.

As such, the 'do nothing' option was not considered a feasible option.

4.9.2.2 Option 1: Alternative track configurations

Option 1 proposed altering the location at which access to Engineering Roads 1 and 2 is gained. This alternative track configuration would then increase the length of Engineering Roads 1 and 2 for the longer New Intercity Fleet trains and avoid impacts to the Welder's Shed. However, given the complexity of the rail network within the Precinct, such an option would trigger a number of additional works to relocate a number of other maintenance roads within the Precinct. This option would significantly increase the scope of works to achieve the required operating objectives and would result in additional operational complexity and disruption to the existing users during construction phase, when compared to Option 2.

4.9.2.3 Option 2: Extension of existing tracks and overhead wires

Option 2 proposed to extend the Eastern Siding and Engineering Roads 1 and 2 and supporting infrastructure by approximately 26 metres and 49 metres respectively. It would also extend the OHW for the full length of maintenance road 6 of the Millennium Shed and associated signalling and electrical isolation equipment, and would require the demolition of the Welder's Facility. This option would maximise the operational efficiency and flexibility for the movement and stabling of trains, allowing for the full length of the train to be decanted. This option also eliminates the electrical safety risks, would be relatively simple to construct, cost effective and logical. As such, Option 2 was selected as the preferred option (and is outlined in more detail in Section 3)

4.9.3 Outcome of options assessment

The 'Do Nothing' option was discounted as it would not meet the operational requirements for stabling and maintaining the New Intercity Fleet in the Precinct. Between Option 1 and Option 2, Option 2 was assessed as the best choice in regards to construction methodology, the least scope of works, benefits to safety, and the minimisation of disruption to existing maintenance facilities and users within the Precinct during construction. However, Option 2 has a greater impact to the heritage values of the Eveleigh Railway Workshops than Option 1.

4.10 Statement of heritage impact

A statement of heritage impact for the proposed works at Eveleigh Railway Workshops, adhering to Heritage Division guidelines (Heritage Council of NSW, 2009), is presented in Table 17.

Table 17: Statement of heritage impact for Eveleigh Railway Workshops

Heritage Division Criteria	Discussion
<p>What aspects of the proposal respect or enhance the heritage significance of the Heritage Values of the Precinct (National and State) as well as nearby heritage items?</p>	<ul style="list-style-type: none"> • The project would involve the enlargement of active, in-use rail infrastructure within the Precinct. This is in keeping with the historical purpose and heritage value of the Precinct. • The continuation of use and upgrade of the train maintenance facilities at the Precinct represents an engagement with evolving heritage of the site and the persistence of rail labour in the Precinct.
<p>What aspects of the proposal could have a detrimental impact on the heritage significance of the areas surrounds and nearby heritage items?</p>	<ul style="list-style-type: none"> • The project would result in the total demolition of the Welding Qualifications Centre, which is an element of little heritage significance in the Eveleigh Railway Workshops • The project would result in a major impact to the wooden buffer stop, an element of little heritage significance in the Eveleigh Railway Workshop • The project would result in a moderate visual impact on the Works Manager's Office which is an element of high heritage significance within the Eveleigh Railway Workshops • Overall, the project would result in a minor impact to the State Heritage listed Eveleigh Railway Workshops (SHR# 01140). • The project would result in a negligible impact to the heritage values of the locally significant FRN 2186 Second Class Sitting / Buffet Car (RailCorp s170 register, SHI# 4807101). • The project has a low to moderate potential to impact archaeological remains of State significance associated with the Eveleigh Railway Workshops.
<p>Have all options for retention and adaptive re-use of the Welding Qualifications Centre been explored?</p>	<ul style="list-style-type: none"> • Two other options, the do-nothing option and option 1 involved the retention of the Welding Qualifications Centre. • The do-nothing option was not selected as it would not meet the operational requirements to stable the New Intercity Fleet in the Precinct. • Option 1 was not selected as a new junction to the rail network for Engineering Roads 1 and 2 would be required to stable the longer New Intercity Fleet trains. In order to extend this junction point far enough to the east to avoid demolishing the Welding Qualifications Centre, new points would be required. This reconfiguration of existing rail in the Precinct would involve alterations to a number of nearby maintenance roads and sidings, which would create significant disruptions to operations in the Precinct during construction, as well as a significant expansion to the scope and cost of the project.
<p>Can all of the significant elements of the Welding Qualifications Centre be kept and any new development be located elsewhere on site?</p>	<ul style="list-style-type: none"> • Existing equipment used to train welding personnel at the Welding Qualifications Centre would be relocated to a new facility on the site, continuing the role of the building as a training centre elsewhere within the Precinct. • Portions of the built fabric of the Welding Qualifications Centre may have been adapted from earlier structures in the Precinct when it was built in the 1960s. Significant built fabric could be preserved as part of any heritage interpretation strategy enacted following demolition. • The building has been assessed as being an element of little heritage significance to the overall Precinct.

Heritage Division Criteria	Discussion
<p>Is demolition of the Welding Qualifications Centre essential at this time or can it be postponed in case future circumstances make its retention and conservation more feasible?</p>	<ul style="list-style-type: none"> The demolition of the Welding Qualification Centre cannot be postponed as the removal of the building is essential for the extension of Engineering Roads 1 and 2.
<p>Has the advice of a heritage consultant been sought? Have the heritage consultant's recommendations been sought? If no, why not?</p>	<ul style="list-style-type: none"> A heritage consultant has been sought for this project and their recommendations have been adhered to Heritage advice from Sydney Trains has also been incorporated into the recommendations for this report
<p>Justification for impact</p>	<ul style="list-style-type: none"> In order to stable the longer New Intercity Fleet trains at Eveleigh, longer sidings are required. Engineering Roads 1 and 2, and the Eastern Siding, are the ideal sidings to be converted for use of the longer NIF trains. This would require: <ul style="list-style-type: none"> the demolition of the Welding Qualifications Centre, which is listed as an element of little significance to the overall heritage value of the Eveleigh Railway Workshops SHR item an extension of the Eastern Siding into the Australian Technology Park area which would involve the relocation of the heritage listed rail carriage and moderate visual impacts to the Work Manager's Office, which is an item of high significance to the heritage values of the Eveleigh Railway Workshops SHR item. Options to avoid these rail line extensions would involve expanding scope and costs as well as significant disruptions to the working rail maintenance facilities currently in operation in the Precinct.

5.0 ARCHAEOLOGICAL RESEARCH DESIGN

5.1 Introduction

This section outlines the management strategies for minimising impacts to archaeological resources through archaeological monitoring and excavation of significant finds within impact areas.

The project is being assessed at concept design phase and precise ground disturbing impacts for works, particularly in Subject Site 1, has not yet been developed. Once detailed constructability information has been developed for these works, this Archaeological Research Design should be updated with a specific Archaeological Work Methods Statement.

5.2 Summary of proposed archaeological impacts

The archaeological assessment for the project identified two archaeological resources which have the potential to be impacted by ground disturbing works. These impacts and their management strategies are summarised in Table 18.

Table 18: Impacts to archaeological resources and archaeological management strategies

Location	Archaeological Resource	Impact	Archaeological Management
Subject Site 1	Low to moderate potential for State significant deposits associated with former locomotive stores	Total direct impact; may be reduced in extent during detailed design	<ul style="list-style-type: none"> archaeological supervision and monitoring of ground slab removal, grading and clearing following demolition of Welding Qualifications Centre should archaeological resources be identified following ground slab removal, a program of archaeological salvage would be initiated should archaeological resources not be identified following ground slab removal, a program of archaeological testing would be conducted following the provision of detailed constructability information, an updated Archaeological Work Methods Statement would be provided archaeological monitoring as a minimum management measure for all remaining ground disturbing works at Subject Site 1
Subject Site 2	Low to moderate potential for State significant deposits associated with former engine running shed	Partial direct impact from excavation for Overhead wiring service footings and service conduit installation	<ul style="list-style-type: none"> following the provision of detailed constructability information, an updated Archaeological Work Methods Statement would be provided archaeological supervision and monitoring in area of excavation for overhead wiring staunchion footings archaeological monitoring of excavation for new service trenches

5.3 Archaeological investigation

5.3.1 Subject site 1

Detailed constructability of demolition, track extension and service trenching at Subject Site 1 is not yet available during the concept design phase of the project (Figure 37). The Welding Qualifications

Centre is an above-ground structure located over potential archaeological structures relating to the former locomotive stores. The extent of localised disturbance in this area is unknown, with differential ground elevations to the east of the Welding Qualifications Centre and below-ground train maintenance pits present within the Welding Qualifications Centre.

The removal of the Welding Qualifications Centre steel frame footings and concrete ground slabs within Subject Site 1 should be archaeologically monitored and supervised. Once these items have been removed, general clearing and levelling should be monitored and controlled by the excavation director to assess former ground surfaces and the degree of intactness of archaeological deposits, if present. Should intact archaeological deposits be identified following the removal of the ground slab, archaeological salvage excavation would be initiated at the discretion of the excavation director to investigate these deposits. Should archaeological deposits not be immediately identified, a program of archaeological test excavation would be initiated to test for the presence of archaeological deposits that may be located underneath imported fills and deposits.

5.3.2 Subject site 2

Ground disturbing impacts at Subject Site 2 are limited to footing excavation for new overhead wiring structures to be installed to the east of the Millennium Shed and potential trenching to install new service conduits. These works would consist of machine excavation up to 4 metres deep and up to 1 metre by 1 metre wide. The location of these footings is directly within the footprint of the former engine running shed, and the depth of excavation would involve total impacts to any archaeological resources in those locations.

Due to the limited horizontal extent of the footing pits and potential service trenching, archaeological test excavation would not be feasible in this location. Instead, machine excavation would proceed under the control and supervision of the excavation director. Any identified archaeological deposits would be cleaned and recorded by the archaeological team. Should significant intact deposits be identified, excavation would proceed manually until these deposits had been archaeologically removed.

5.4 Research Design

5.4.1 Historic Themes

Historical themes are a way of describing important processes or activities which have significantly contributed to Australian history. Historical themes are described at a national and state level. The Heritage Council of NSW has prepared a list of state historic themes relevant to the demographic, economic and cultural development of the state (Heritage Council of NSW 2006). The use of these themes provides historical context in order to allow archaeological items to be understood in a wider historical context.

Historical themes relevant to the archaeological potential in the subject sites are outlined in Table 20 and Table 19.

Table 19: Historical themes associated with archaeological potential relating to the former locomotive stores (Subject Site 1)

Australian theme	NSW theme	Explanatory Notes	Comments
3. Developing local, regional and national economies	Industry	Activities associated with the manufacture, production and distribution of goods	The former locomotive stores were the repository of industrial and mechanical parts for train maintenance and repair facilities at the Eveleigh Railway Workshops
3. Developing local, regional and national economies	Technology	Activities and processes associated with the knowledge or use of mechanical arts and applied sciences	The former locomotive stores were the location where railway workers obtained tools and equipment for their industrial activities at the Eveleigh Railway Workshops
5 Working	Labour	Activities associated with work practises and organised and unorganised labour	The former locomotive stores were utilised by all the workers of the various facilities at the Eveleigh Railway Workshops

Table 20: Historical themes associated with archaeological potential relating to the former Engine Running Shed (Subject Site 2)

Australian theme	NSW theme	Explanatory Notes	Comments
3. Developing local, regional and national economies	Industry	Activities associated with the manufacture, production and distribution of goods	The former engine running shed was a locus of locomotive engine repair and manufacturing
3. Developing local, regional and national economies	Technology	Activities and processes associated with the knowledge or use of mechanical arts and applied sciences	The former engine running shed was one of the first large scale industrial centres for locomotive engine construction in NSW
3. Developing local, regional and national economies	Transport	Activities associated with the moving of people and goods from one place to another, and systems for the provision of such movements	The former engine running shed was a critical maintenance and manufacturing facility for late 19 th and early 20 th century locomotive engines

5.4.2 Research Questions

Archaeological resources within the project area have the potential to answer a number of research questions. Additional research questions may be added if the archaeological resource allows for further, or more in-depth, investigation. The following research questions would guide the archaeological program:

- To what extent has later industrial development at the Eveleigh Railway Workshops impacted archaeological remains associated with the former Engine Running Shed and former Locomotive Stores?
- Can intact, legible archaeological remains of the former structures at the Eveleigh Railway Workshops be archaeologically identified? Are these remains intact and of significance?

- Are day to day working habits and labour practices discernible from archaeological remains located at the former Locomotive Stores and former Engine Running Shed?
- Prior to the demolition of the former Locomotive Stores and Engine Running Shed, were the material supplies for railway repair and maintenance entirely removed? Do discarded machine and industrial deposits still remain intact? Can industrial remains provide information on technological and working practices?
- Archival sources have preserved detailed architectural plans of the Engine Running Sheds. Can archaeological resources further elaborate the architectural and industrial design of the former facility?
- The former Locomotive Stores were utilised by all the workers in the various facilities of the Eveleigh Railway Workshops, and would have been the location of significant labour congregation. Can evidence of worker assemblies, labour organisation, worker recreation and lifeways be identified from archaeological remains associated with the former Locomotive Stores?

5.5 Archaeological methodology

5.5.1 Nomination of excavation director

An appropriately experienced and qualified excavation director would be nominated and would have input into the Archaeological Work Method Statement once constructability methodologies have been provided during detailed design.

5.5.2 Archaeological excavation methodology

State significant archaeological potential has been identified in Subject Site 1 and Subject Site 2. These areas of potential are likely to be partially or wholly impacted by the proposed works. These areas of potential should be archaeologically investigated in areas of impact prior to the commencement of construction works.

The first phase of archaeological investigation would be archaeological monitoring of the removal of existing structures and ground surfaces. An archaeological monitoring methodology for the removal of existing structures and surfaces is provided in Section 5.5.3.

Subject Site 1

Once full constructability information has been provided, an Archaeological Work Methods Statement would be developed to outline the archaeological management of specific ground disturbing impacts. The following methodology provides a broad approach for archaeological investigation to be refined once detailed impact information has been provided.

Following archaeological monitoring and supervision of machine excavation of the removal of the existing structures and ground surfaces, archaeological investigation would be conducted. The extent of archaeological excavation would be contingent on the following factors:

- degree of intactness of archaeological deposits identified during monitoring of ground slab removal

- assessed significance of archaeological remains identified during archaeological monitoring of ground slab removal
- avoiding areas of known ground-disturbance (e.g. known service corridors) in the area
- located within areas designated for ground disturbing works

Should archaeological deposits not be identified during the removal of the ground surface, archaeological test excavation would be proposed. This would involve machine trench excavation under the control and supervision of the excavation director, to remove fills and overburden to locate any underlying archaeological deposits.

Should intact archaeological deposits be identified during ground slab removal or during test trenching excavation, a program of archaeological salvage would be initiated. Excavation would be undertaken by hand. Archaeological remains would be cleaned by hand to allow archaeologists to understand the nature of the potential archaeological resource within the trench.

Depending on the intactness and nature of archaeological remains identified, archaeological open area excavation would be conducted. This would involve ground excavation of the archaeological resource up to the maximum extent of the resource within the area of proposed ground disturbing works.

All archaeological features and deposits would be recorded according to the methodology provided in section 5.5.4 below.

Subject Site 2

Proposed ground disturbing impacts at Subject Site 2 are restricted to the area of excavation required for OHW staunchion footings. These areas are relatively constrained (approximately one metre by one metre in extent). Because of the limited area of impact for the staunchion footings, ground excavation for the installation of the footings would be archaeologically monitored under the control and supervision of the excavation director, in accordance with the methodology provided in section 5.5.4. All archaeological features and deposits would be recorded according to the methodology provided in section 5.5.3.

5.5.3 Methodology for archaeological monitoring

Archaeological monitoring involves the nominated archaeologist/s guiding machine excavation during ground disturbing works which may impact on significant archaeological remains. Archaeological monitoring would be conducted for the following ground disturbing works within areas of archaeological potential:

- excavation for the installation of overhead wiring staunchion footings in Subject Site 2
- demolition of buildings
- removal of existing ground surfaces
- non-destructive service location work.

If archaeological remains are encountered during excavation, works in the immediate area would cease until the archaeologist/s has investigated and assessed the remains. Truncated and disturbed remains, which are not significant or do not have research potential, such as remnant and incomplete building footings or contextual isolated artefacts, would be recorded and removed if necessary.

Should significant and intact archaeological deposits be identified during monitoring, archaeological excavation or open area salvage excavation, depending on the extent of the proposed ground disturbing works in that location, would be recommended.

5.5.4 Recording methodology

A record of the monitoring and archaeological excavation program would be made. This recording would be undertaken in accordance with best practice and Heritage Division guidelines. The recording methodology includes the following:

- significant archaeological structural remains, deposits and features would be recorded on context sheets
- a photographic record of the program and details of significant archaeological remains made
- survey and/or scale drawings would be prepared and include the location of remains within the overall site
- significant artefacts would be collected by context for later analysis
- registers of contexts, photos, samples and drawings would be kept.

5.5.5 Artefacts

Artefacts from secure or *in situ* contexts would be collected and recorded. It is proposed that only diagnostic pieces and other items whose analysis would contribute to the research questions for this site be retained.

Should diagnostic or significant artefacts be present within the fill layers (out-of-context), a sample will be retained as part of the archaeological record.

- Retained artefacts would be processed, catalogued and analysed by an archaeologist experienced in historical artefact assemblages. The resulting information would be included in the final monitoring or excavation report.
- Following the completion of the cataloguing and assessment of recovered artefacts, the proponent would be responsible for the storing of artefact collections excavated during investigative works. Depending on the quantity and intactness of any recovered relics, TfNSW would liaise with Sydney Trains to determine the appropriate long-term curation and management of the recovered items.
- Intact and demonstrative remains of early phases of the Eveleigh Railway Workshops would ideally be managed under the Sydney Trains Movable Heritage Strategy. This may result in artefacts being curated in the Sydney Trains Movable Heritage Collection in the northern Eveleigh Railway Workshops, or potential display and/ or storage in a Sydney Trains repository.
- Recovered archaeological finds could be incorporated into interpretative programmes of the heritage of the Precinct, either within the Australian Technology Park or at the Eveleigh Facility Project.

5.5.6 Avoiding impacts to State significant archaeological resources

Should intact State significant archaeological remains be identified during archaeological test excavation within areas of impact, consideration should be taken for the redesign of construction elements to avoid impacting these archaeological resources.

5.6 Unexpected finds

For all other ground disturbing works, the TfNSW Unexpected Finds Procedure would be followed:

6.0 CONCLUSIONS AND RECOMMENDATIONS

The project would result in the following:

- minor impact to the State Heritage listed Eveleigh Railway Workshops (SHR# 01140)
- major physical impact (total demolition) to the Welding Qualifications Centre. This item has been identified as having little heritage significance
- major physical impact (removal) of a wooden buffer stop. This item has been identified as having little heritage significance
- moderate visual impact to the Works Manager's Office, an element of high heritage significance of the Eveleigh Railway Workshops
- negligible impact to the heritage values of the locally significant FRN 2186 Second Class Sitting / Buffet Car (RailCorp s170 register, SHI# 4807101)
- low to moderate potential to impact archaeological remains of State significance within the Precinct.

6.1 Recommendations

The following heritage recommendations are provided for the project:

- A Section 60 permit under the NSW *Heritage Act 1977* would be required prior to impacts within the Eveleigh Railway Workshops. This assessment should be provided to NSW Heritage Council in support of that application.
- The Welding Qualifications Centre should be archivally recorded prior to demolition. This would ensure that architectural details as well as context and setting would be permanently recorded. Archival recording would be undertaken in accordance with NSW Heritage Council guidelines.
- The portion of plaza in front of the Works Managers Office, containing Heritage Car FRN 2186, should be subject to archival recording prior to works commencing, including relocation of FRN 2186. Archival recording would be undertaken in accordance with NSW Heritage Council guidelines.
- The wooden buffer stop in the Eastern Siding should be re-used if feasible and if it meets current operational requirements.
- A schedule of movable heritage objects in the welders shed should be prepared in consultation with Sydney Trains. The schedule of objects would be prepared prior to commencement of works, and provide guidance in accordance with the Sydney Trains Movable Heritage Strategy on the temporary and long-term curation of these items.
- Sympathetic design and materials would be considered as part of detailed design, particularly in Subject Site 3 in front of the Works Managers Office.
- A program of archaeological monitoring under the supervision of the excavation director would be conducted during the removal of the present ground surfaces in Subject Site 1. Depending on the intactness of archaeological resources identified in this area, testing or open area

salvage excavation would be conducted at the discretion of the excavation director. The extent of this program would be refined during detailed design and constructability stages of the project and would be input into an Archaeological Work Method Statement which would supplement the present Archaeological Research Design. All State significant deposits would be archaeologically excavated, recorded and removed within areas of impact

- A program of archaeological monitoring under the supervision of the excavation director should be conducted for footing excavation of overhead wiring stanchions located within Subject Site 2 in accordance with the Archaeological Work Method Statement. All State significant deposits would be archaeologically excavated, recorded and removed within areas of impact.
- Minor ground disturbing impacts (such as non-destructive digging service investigation) should be archaeologically monitored in areas of identified archaeological potential in accordance with the Archaeological Research Design.
- The FRN 2186 Second Class Sitting / Buffet Car is situated in a prominent area which suits the heritage character of the carriage. If possible, it should be relocated to an area with similar public visual prominence. The construction contractor would prepare plans for removal, temporary storage and temporary remediation works following removal of the carriage prior to works commencing. The final location of the carriage would be determined in consultation with the owner of the carriage and the property owner.
- The memorial plaques and their plinths currently located to the west of the Welding Qualifications Centre must be protected from damage during demolition and any other construction works. This protection may consist of a temporary exclusion zone.
- In accordance with Policy 3.6 of the Australian Technology Park Conservation Management Plan, the obstruction of the northward view corridor from the pedestrian plaza in the Australian Technology Park caused by the extension of the Eastern Siding, should be minimised by design. For example, barrier height and bulk should be minimised as much as possible to conserve view lines and possible access routes between the Work Manager's Office and the Locomotive Workshops.
- In accordance with Policy 9.2 of the Australian Technology Park Conservation Management Plan, local, heritage and rail history community groups should be informed of the proposed works and their input sought for strategies to preserve the rail heritage of the Australian Technology Park.
- The Transport for NSW Unexpected Find Procedure would be adhered to during construction.

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